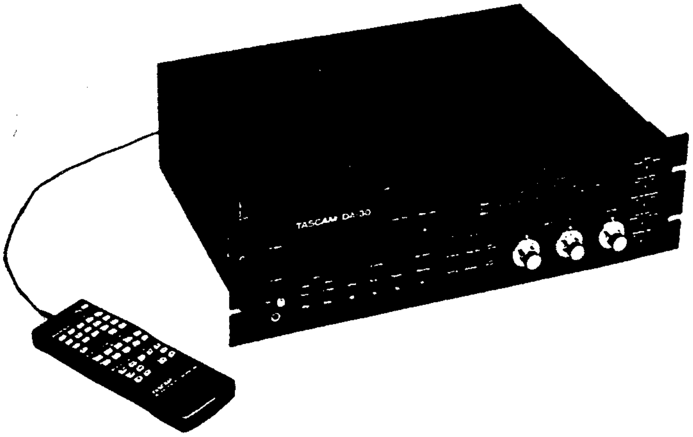
006



# TASCAM
TEAC Professional Division

# SERVICE MANUAL

---

# DA-30

## Digital Audio Tape Deck

---

**NOTES**

As regards the resistors and capacitors, refer to the circuit diagrams and the PCB ass'y drawings contained in this manual.

- Parts marked with * require longer delivery time.
- Resistor values are in ohms (k = 1,000 ohms, M = 1,000,000 ohms).
- All capacitor values are in microfarads (p = picofarads).
- ⚠ Parts marked with this symbol are safety critical components. They must always be replaced with identical components — refer to the TEAC parts List and ensure exact replacement.
- 0 dB is referenced to 1V in this manual unless otherwise specified.
- PC boards shown are viewed electro-parts side.
- Parts not shown in the parts lists or parts, through listed, having no parts numbers are not general "ready-to-supply" parts.

注意

標準の抵抗：コンデンサーは省略してあります。回路図及び基板図を参照してください。

1. 基板図は部品面が示されています。
2. ＊印の部品は納期が若干かかります。あらかじめご了承ください。
3. ⚠印は安全規格重要部品です。交換するときは必ずティアック指定の部品を使用して下さい。
4. レベルは0dB＝1Vを基準にしています。
5. コンデンサの単位はμF.p＝pF（1μF＝1,000,000pF）
6. 製品が改善されているために、製品と回路図が一部異っている場合があります。
7. リストされていない部品は原則としてサービス供給部品として取扱っていません。

Effective: JUNE, 1990 940356

5704049900

# 1. SPECIFICATIONS

| | |
|---|---|
| **Category:** | Rotary Head Digital Audio Tape Recorder |
| **Tape Speed:** | 8.15 mm/sec. in play/record (play speed of 12.225 mm/sec. also supported) |
| **Record Time:** | 120 minutes (with R-120 cassette) |
| **Head Drum Speed:** | 2,000 rpm (in record/play) |
| **Fast Winding:** | 70 seconds (approx.) (with R-120 cassette) |
| **Error Correction:** | Octet (eightfold) correction |
| **Channel Number:** | 2 |
| **Quantization Bit:** | 16 bit linear |
| **Sampling Rate:** | 48 kHz (in play/record)<br>44.1 kHz (in play/record)<br>32 kHz (in play, and record with digital inputs) |
| **Frequency Response (Record):** | 1-22,000 Hz +/-0.5 dB |
| **Signal-to-Noise Ratio:** | Better than 94 dB |
| **Dynamic Range:** | Better than 94 dB |
| **Total Harmonic Distortion:** | Less than 0.004 % (at 1 kHz) |
| **Channel Separation:** | Better than 94 dB (at 1 kHz) |
| **Wow and Flutter:** | Unmeasurable (less than +/-0.001 %) |
| **Input — Analog** | |
| **BALANCED:** | XLR type connector (XLR-3-31) x 2; Pin 1 Shield, Pin 2 Low, Pin 3 High |
| **Nominal Input Level:** | +4 dBm (1.23 volts) |
| **Input Impedance:** | 10k ohms |
| **UNBALANCED:** | RCA jack x 2 |
| **Nominal Input Level:** | -10 dBV (0.316 volt) |
| **Input Impedance:** | 50k ohms |
| **— Digital** | |
| **AES/EBU Port:** | XLR type connector (XLR-3-31); Pin 1 Shield, Pin 2 Low, Pin 3 High |
| **Coaxial Port:** | RCA jack |
| **Output — Analog** | |
| **VARIABLE:** | |
| **BALANCED:** | XLR type connector (XLR-3-32) x 2; Pin 1 Shield (GND), pin 2 Cold (Low), pin 3 Hot (High) |
| **Nominal Output Level:** | +4 dBm (1.23 volts) |
| **Output Impedance:** | 10 ohms |
| **Maximum Output Level:** | +22 dBm (9.75 volts) |
| **UNBALANCED:** | RCA jack x 2 |
| **Nominal Output Level:** | -10 dBV (0.316 volt) |
| **Output Impedance:** | 470 ohms |
| **Maximum Output Level:** | 2.5 volts |
| **FIXED; UNBALANCED:** | RCA jack x 2 |
| **Nominal Output Level:** | 2.0 volts |
| **Output Impedance:** | 470 ohms |
| **Maximum Output Level:** | 2.5 volts |
| **PHONES:** | 1/4" jack x 2 |
| **Output Level:** | 100 mW or more (8 ohms) |
| **— Digital** | |
| **AES/EBU Port:** | XLR type connector (XLR-3-32); Pin 1 Shield (GND), pin 2 Cold (Low), pin 3 Hot (High) |
| **Coaxial Port:** | RCA jack |
| **Remote Connection:** | Mini-jack |
| **External Control I/O Port:** | D-sub 15 pin (female) |
| **Power Requirements** | |
| **USA/CANADA:** | 120 V AC, 60 Hz |
| **U.K./AUSTRALIA:** | 240 V AC, 50 Hz |
| **EUROPE:** | 220 V AC, 50 Hz |
| **General Export Model:** | 100/120/220/240 V AC, 50/60 Hz |
| **Consumption:** | 34 Watts |
| **Dimensions (WxHxD):** | 482 x 150.5 x 346 mm (19" x 6-1/16" x 13-5/8") |
| **Weight:** | 9.5 kg, 20-15/16 lbs. (remote not included) |

Changes in specifications and features may be made without notice or obligation.

# 1. 仕　様

| | |
|---|---|
| 型式 | 回転ヘッド方式デジタル・オーディオ・テープ・レコーダー |
| テープ・スピード | 8.15mm/sec（再生時は12.225mm/secにも対応） |
| 録音時間 | 120分（120分テープ使用時） |
| ドラム回転数 | 2,000rpm（録音／再生時） |
| 早送り／巻戻し | 約70秒（120分テープ使用時） |
| エラー訂正方式 | 8重エラー訂正 |
| チャネル数 | 2チャネル |
| 量子化ビット数 | 16ビット・リニア |
| サンプリング周波数　48kHz： | 再生・録音 |
| 44.1kHz： | 再生・録音 |
| 32kHz： | 再生・録音はデジタル入力のみ |
| 録音周波数特性 | 1～22,000Hz±0.5dB |
| S/N比 | 94dB以上 |
| ダイナミック・レンジ | 94dB以上 |
| 全高調波歪み率 | 0.004%以下（1kHz） |
| チャネル・セパレーション | 94dB以上（1kHz） |
| フウ・フラッター | 測定限界（±0.001%）以下 |
| 入力端子 | |
| ●アナログ | |
| LINE IN： | |
| BALANCED： | XLRタイプ・コネクター（XLR-3-31TYPE）×2 |
| UNBALANCED： | RCAピン×2 |
| ●デジタル | |
| AES/EBU： | XLRタイプ・コネクター（XLR-3-31TYPE） |
| 同軸： | RCA ピン |
| 出力端子 | |
| ●アナログ | |
| LINE OUT： | |
| BALANCED： | XLRタイプ・コネクター（XLR-3-32TYPE）×2（出力可変）<br>最大出力レベル22dBm |
| UNBALANCED： | RCAピン×2（出力可変）<br>最大出力レベル2.5V |
| UNBALANCED： | RCAピン×2（出力固定）<br>最大出力レベル2.0V |
| PHONES： | φ6.3ホン・ジャック×1<br>出力レベル100mW以上（8Ω負荷） |
| ●デジタル | |
| AES/EBU： | XLRタイプ・コネクター |
| 同軸： | RCA ピン |
| リモコン入力端子： | φ3.5ミニチュア・ジャック |
| コントロール入出力端子： | D-SUB　15ピン（メス型） |
| 電源 | 100V AC 50/60Hz |
| 消費電力 | 34W |
| 外形寸法 | W482×H150.5×D346mm |
| 重量 | 9.5kg |

＊仕様及び外観は，改善のため予告なく変更することがあります．

＊製品の改善により，取扱説明書の写真が一部，製品と異なることがあります．あらかじめ，ご了承ください．

# 2. REMOVAL OF COMPONENTS

各部品の外し方

## 2-1. Flowchart

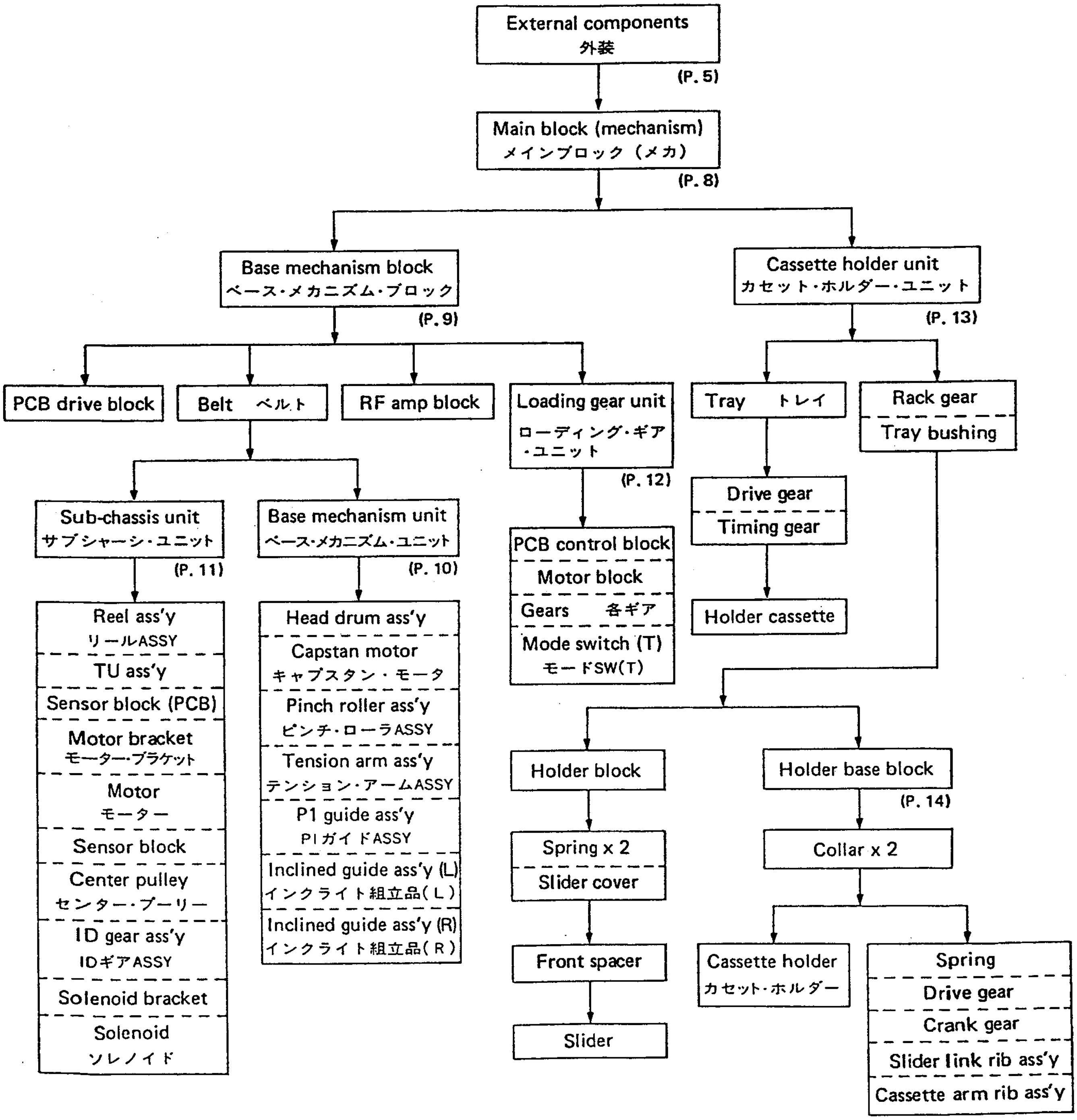
Remove the components in sequence, referring to the flowchart below.
For removal, refer to the page shown.

## 2－1．フローチャート

各部品を取外すときは，下記のフローチャートに従って順番に外して下さい．

取り外し方は，各ページを参照して下さい．

Disassembly flowchart of main parts



External components
外装
(P. 5)
Main block (mechanism)
メインブロック（メカ）
(P. 8)
Base mechanism block
ベース・メカニズム・ブロック
(P. 9)
Cassette holder unit
カセット・ホルダー・ユニット
(P. 13)
PCB drive block
Belt ベルト
RF amp block
Loading gear unit
ローディング・ギア・ユニット
(P. 12)
Tray トレイ
Rack gear
Tray bushing
Sub-chassis unit
サブシャーシ・ユニット
(P. 11)
Base mechanism unit
ベース・メカニズム・ユニット
(P. 10)
Drive gear
Timing gear
Holder cassette
Reel ass'y
リールASSY
TU ass'y
Sensor block (PCB)
Motor bracket
モーター・ブラケット
Motor
モーター
Sensor block
Center pulley
センター・プーリー
ID gear ass'y
IDギアASSY
Solenoid bracket
Solenoid
ソレノイド
Head drum ass'y
Capstan motor
キャプスタン・モータ
Pinch roller ass'y
ピンチ・ローラASSY
Tension arm ass'y
テンション・アームASSY
P1 guide ass'y
P1ガイドASSY
Inclined guide ass'y (L)
インクライト組立品(L)
Inclined guide ass'y (R)
インクライト組立品(R)
PCB control block
Motor block
Gears 各ギア
Mode switch (T)
モードSW(T)
Holder block
Spring x 2
Slider cover
Front spacer
Slider
Holder base block
(P. 14)
Collar x 2
Cassette holder
カセット・ホルダー
Spring
Drive gear
Crank gear
Slider link rib ass'y
Cassette arm rib ass'y

Fig. 2-1.

## 2-2. Removal of External Components

## ２－２．外装部品の外し方

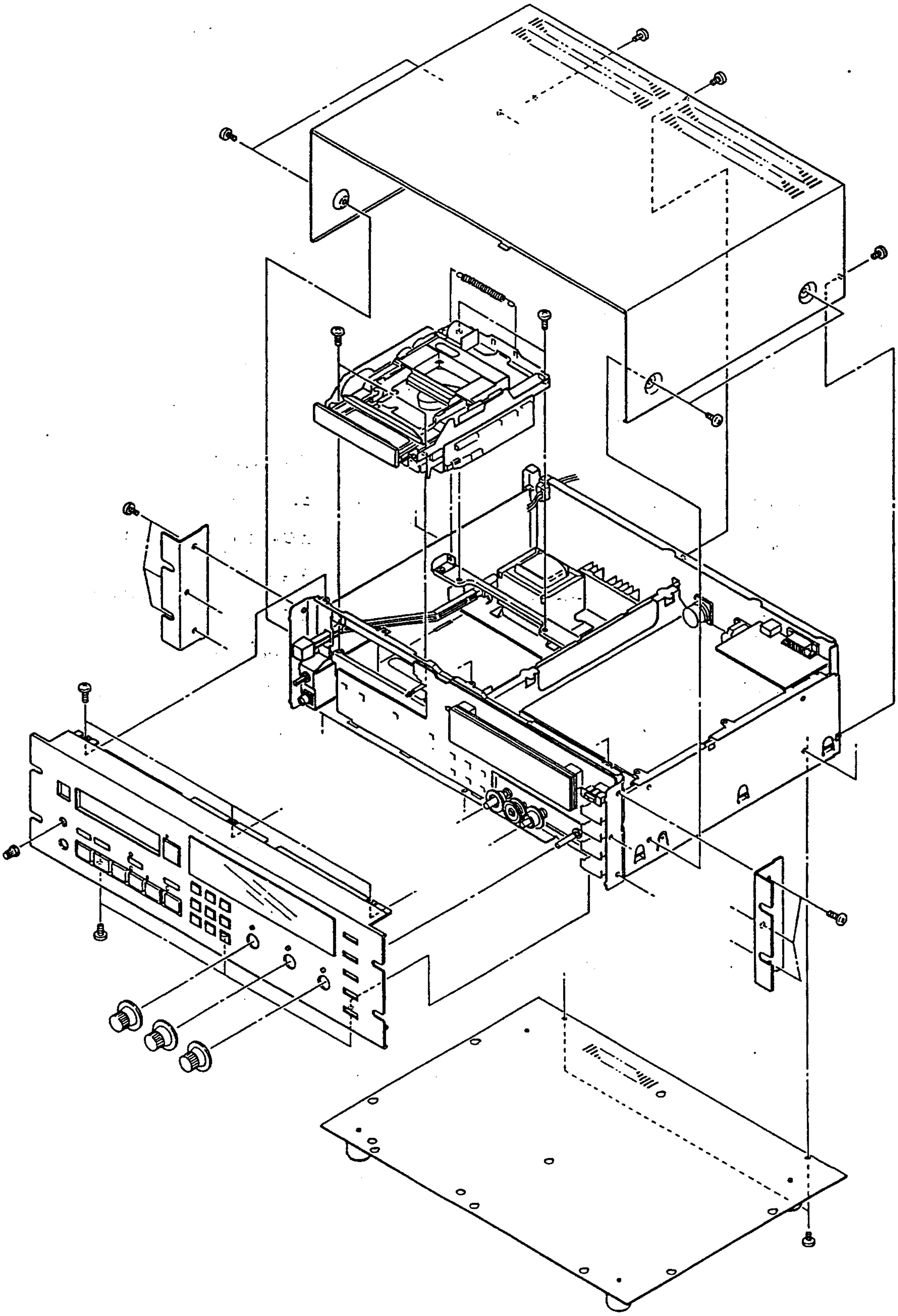


Fig. 2-2

## 2-3. Removal of Mechanical Parts

This section shows the disassembly procedure; to reassemble, reverse the procedure. When reassembling, see that the cables are not trapped and pinched by metallic edges (the chassis, etc.) as wire restraints are used when routing or dressing cables. When an E-ring or washer has been removed, do not use it again.

### 2-3-1. Cautions in handling the mechanism ass'y

1. Mechanism
   - A. When lifting the mechanism ass'y, do not hold both edges with one hand; hold the right and left edges of the chassis with two hands.
   - B. Do not touch the head drum.
   - C. Do not apply force when installing the mechanism ass'y. After removing the mechanism ass'y, always place it the right side up.
     If it must be placed upside down for any reason, place a protective sheet such as bubble packing, etc. under it to protect the exterior of the cassette holder.
   - D. Do not touch the tip of the flexible PC board. Also do not pull or bend it strongly.
   - E. Do not lift the mechanism ass'y by the flexible PC board or leads.
   - F. Do not touch the guide roller with your bare hands. To clean dirt or dust off the roller, wipe it gently with a cotton swab moistened with alcohol.
   - G. Do not touch the portions of the posts which come into contact with the tape. Do not scratch them with tweezers, screwdriver, etc. and be careful not to touch them with magnetized tweezers, screwdriver, etc.
   - H. Do not touch the rubber portions of the pinch roller or belt and the felt portion of the tension band, etc. with greasy fingers.
   - I. Do not touch the pulley over which the belt is hooked with greasy fingers, etc.
   - J. When disassembling the mechanism ass'y, pay attention to the following:
     - (1) The counter torque when screw-locking compound is not applied is maintained at 1 kg·cm or more; therefore, be careful.
     - (2) If a screw secured with screw-locking compound is removed, reapply the compound after reinstaling it. Tightening screws with too much torque may strip the screw threads; be careful.
   - K. When removing the coil spring, take care so that the hook is not deformed.
   - L. When the head becomes dirty, use a cleaning tape.

## 2－3．機構部品の外し方

この項では外し方を主に記述しますが，組立は分解の逆の手順で行なって下さい．その際の線材処理時に，結束部品により線材をシャーシー等，金属部エッジに挟み込むことのない様に注意して下さい．

又，Eリング，ワッシャーを一度外した場合は，再使用しないで下さい．

### 2－3－1．メカニズム Assy 取扱上の注意

1．メカニズム
   - A．メカニズム Assy を掴むときは，片手で両側を強く掴まないこと．シャーシの左右の端を両手で掴むこと．
   - B．シリンダーのドラム部には手を触れないこと．
   - C．メカニズム Assy を置くときは，衝撃を与えない様に置くこと．又，メカニズム Assy は通常方向へ置く事とし，止む終えず逆様に置く場合は，下にエアー・パッキン等保護材を敷き，カセット・ホルダーの外装部品を保護すること．
   - D．フレキの先端部に手を触れないこと．又，フレキを強く引っ張たり曲げたりしないこと．
   - E．フレキまたはリード線を持ってメカニズム Assy を持ち上げないこと．
   - F．ガイド・ローラーのローラーには手で触らないこと．
     汚れを拭くときは，アルコールを綿棒に浸して軽く拭くこと．
   - G．各ポストのテープ走行面に手で触らないこと．
     ピンセットやドライバーで傷を付けないこと．又，磁化されたピンセット，ドライバー等で触らないこと．
   - H．ピンチローラー，ベルトのゴム部，テンション・バンド等のフェルト部に油の付いた手で触らないこと．
   - I．ベルトのかかるプーリ等にグリスの付いた手で触らないこと．

2. Head Drum

A. Do not touch the surface of the drum with which the tape comes into contact.
B. When lifting the drum, hold both sides of its base.
C. When placing the drum on a work bench, place it on a soft mat so that no load or impact is applied to the rotor of the drum and motor.
D. Do not lift the drum by its leads.
E. Do not do any soldering near the drum.
F. Do not apply an external force to the upper drum.

3. Capstan motor

A. Do not let the tip of the screwdriver or a metallic object come into contact with the rotor. Especially a magnet (or magnetized object) should not be brought close to the rotor.
B. Do not place motors next to each other. (Be careful that the rotors do not come into contact with each other.)
C. Do not touch the PG sensor with your fingers.
D. Do not lift the motor by the flexible PC board.

J．メカニズム Assy の分解のときは，次の点に注意すること．

(1)．ネジロックの付いていない戻しトルクは，1Kg-cm以上で管理しているので注意が必要です．

(2)．ネジロックが付いているネジを外した場合は，ネジロックをすること．強く締めすぎるとネジバカになるので注意が必要です．

K．コイル・スプリングを外すときは，フックの変形に注意すること．

L．ヘッドが汚れた場合は，クリーニング・テープを使用すること．

2．シリンダー

A．シリンダーのテープ走行面には，手を触れないこと．
B．シリンダーを掴むときには，シリンダー・ベースの両端を持つこと．
C．シリンダーを置く場合には，ドラム及びモーターのローターに荷重，衝撃を与えない様に軟らかい物の上に置くこと．
D．リード線を持ってシリンダーを持ち上げないこと．
E．シリンダーの近くで半田付けをしないこと．
F．上ドラムに外力を加えないこと．

3．キャプスタン・モーター

A．ローターにはドライバーの先を接触させたり，金属の物などを当てないこと．特に磁石（磁化したもの）は近ずけないこと．
B．モーターを隣りどうしで並べて置かないこと．（ローターどうしが接触しないように置くこと．）
C．PGセンサーには，手を触れないこと．
D．フレキを持ってモーターを持ち上げないこと．

### 2-3-2. Disassembly of the main block (Fig. 2-3)

### ２－３－２．メインブロックの分解（図2-3 ）

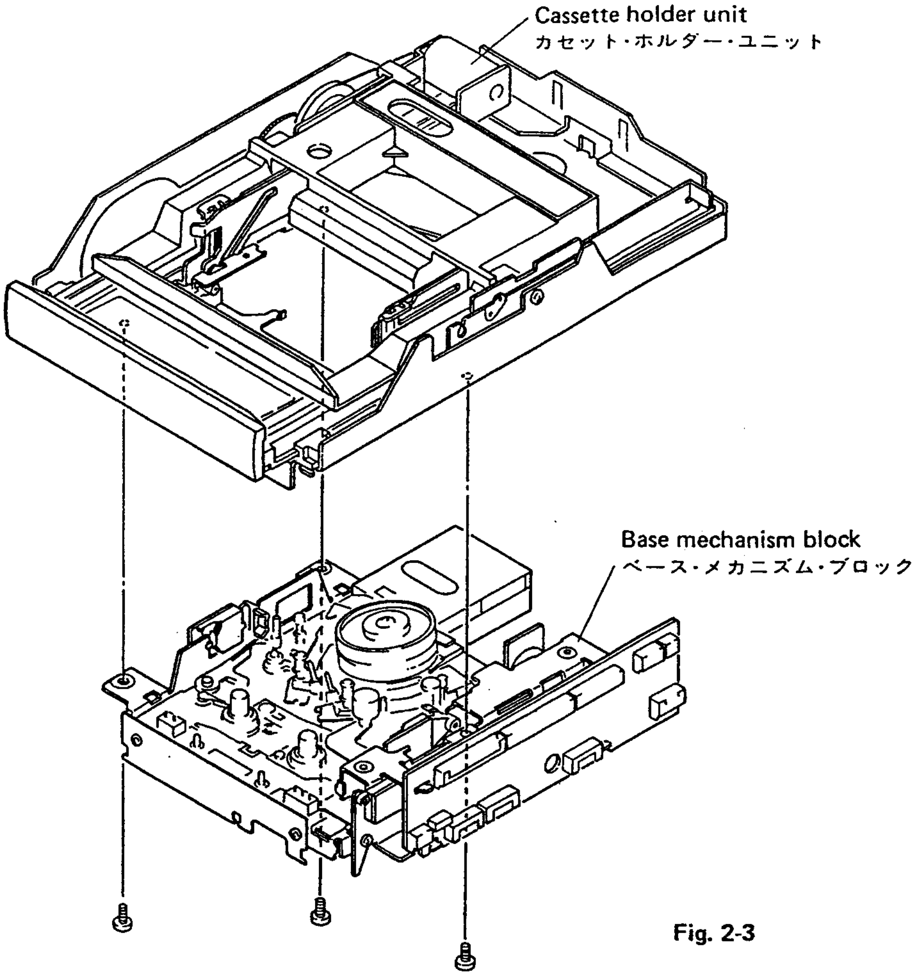

Cassette holder unit
カセット・ホルダー・ユニット
Base mechanism block
ベース・メカニズム・ブロック

Fig. 2-3

1. Cut wire restraint bands Ⓐ and Ⓑ of the PCB control block (Fig. 2-4) of the loading gear unit, then remove connectors CN5, CN6, and CN12.

１．ローディング・ギア・ユニットのPCB CONTROL BLK（図2-4 ）のⒶ，Ⓑの結束バンドを切り，ＣＮ５，ＣＮ６，ＣＮ１２のコネクタを外す．

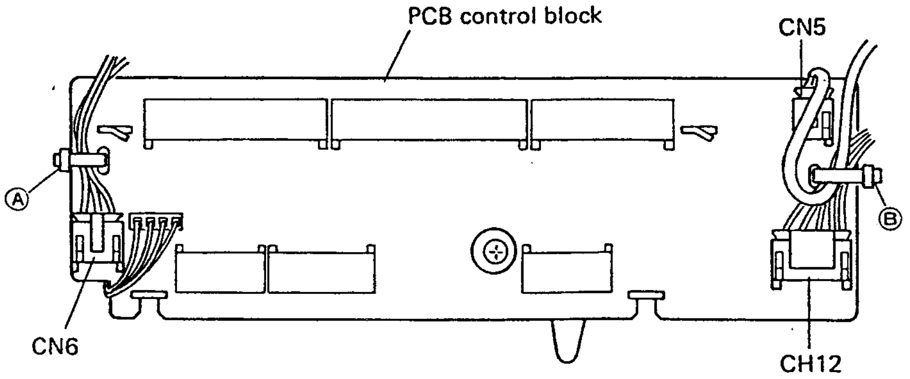

PCB control block
CN5
Ⓐ
Ⓑ
CN6
CH12

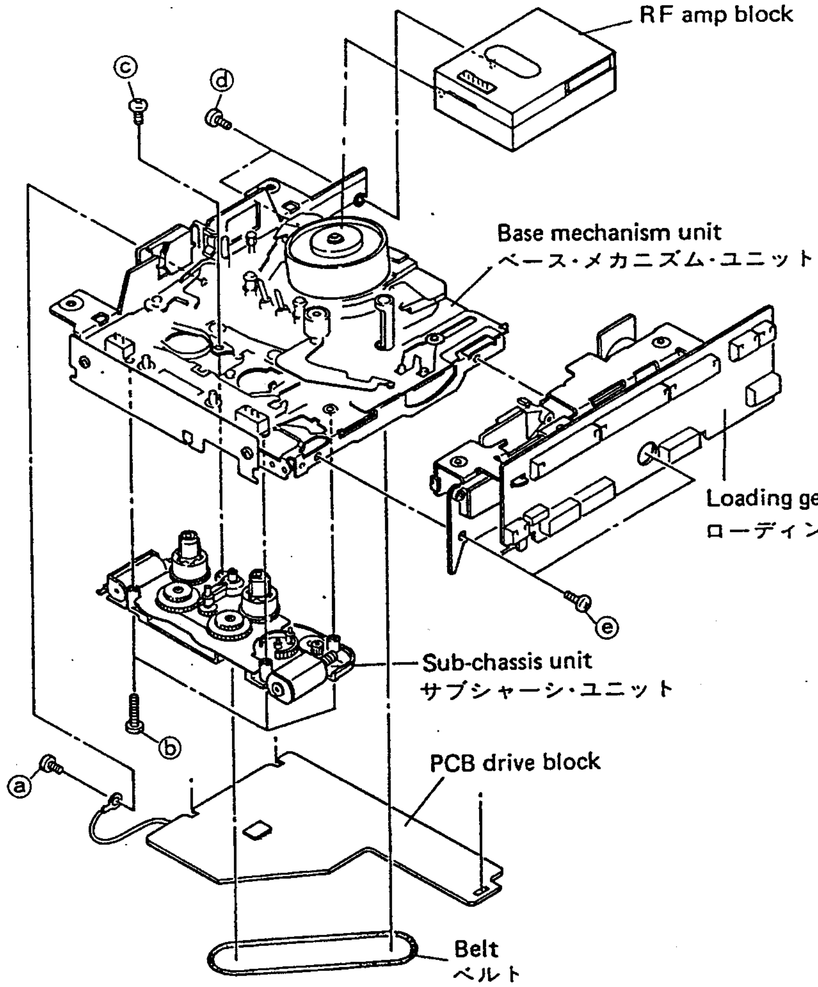
Fig. 2-4

2. Remove the three screws shown in Fig. 2-3, then separate the cassette holder unit from the base mechanism block.

２．図2-3 のネジ３本を外し，カセット・ホルダー・ユニットとベース・メカニズム・ブロックを分離する．

## 2-3-3. Disassembly of the base mechanism block (Fig. 2-5)

## ２－３－３．ベース・メカニズム・ブロックの分解（図2-5）



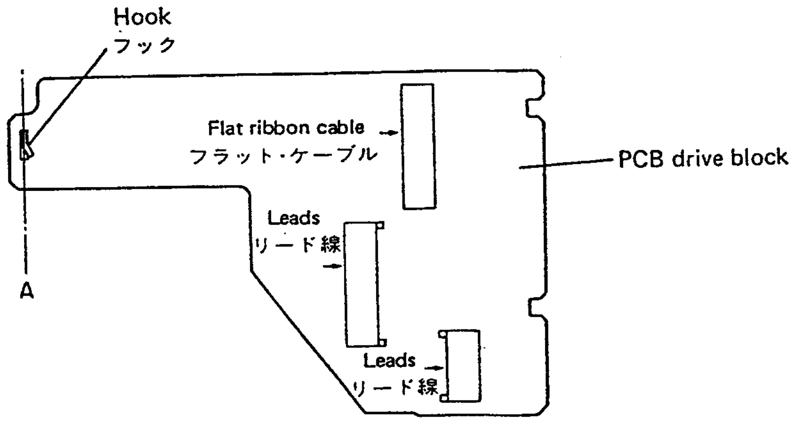
ⓒ
ⓓ
RF amp block
Base mechanism unit
ベース・メカニズム・ユニット
Loading gear unit
ローディング・ギア・ユニット
ⓔ
Sub-chassis unit
サブシャーシ・ユニット
ⓑ
ⓐ
PCB drive block
Belt
ベルト

Fig. 2-5

1. Removal of the PCB drive block
   - I. Remove the flat ribbon cable and leads of the PCB drive block, then bend the hook back over the hole (on line A) as shown in Fig. 2-6 using pliers.

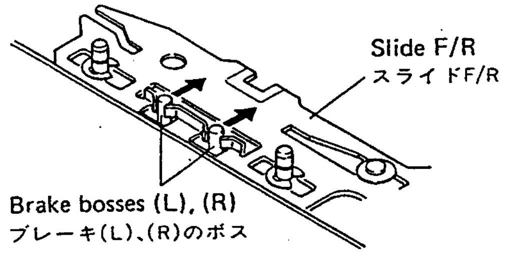
1．PCB DRIVE BLK の取外し

Ⅰ．PCB DRIVE BLK のフラット・ケーブル及びリード線（図2-6）を外し，図2-6 のフックの曲げをプライヤー等で穴上（Ａ線上）に曲げ戻す．



Hook
フック
Flat ribbon cable
フラット・ケーブル
PCB drive block
Leads
リード線
Leads
リード線
A

Fig. 2-6



Slide F/R
スライドF/R
Brake bosses (L), (R)
ブレーキ(L)、(R)のボス

Fig. 2-7

Note: During assembly, feed the hook through the hole, then secure by bending with pliers, etc. The angle of the bend should be such that the PCB drive block does not wobble (approx. 30° to 45°). Do not remove the PCB drive block more than two or three times in view of metal fatigue of the hook.

II. Remove screw ⓐ shown in Fig. 2-5, and remove the PCB drive block.

2. Removal of the belt

   **Note:** Do not let grease or foreign object adhere to the belt.

3. Removal of the sub-chassis unit

   Remove three screws ⓑ and screw ⓒ shown in Fig. 2-5, then remove the sub-chassis unit.

   **Note 1:** Since screw ⓒ is a self-tapping screw, pay attention to the removal and tightening torque.

   **Note 2:** When reinstalling the sub-chassis unit to the base mechanism unit, move the bosses of brakes (L) and (R) shown in Fig. 2-7 in the direction of the arrows.

4. Removal of the RF amp block

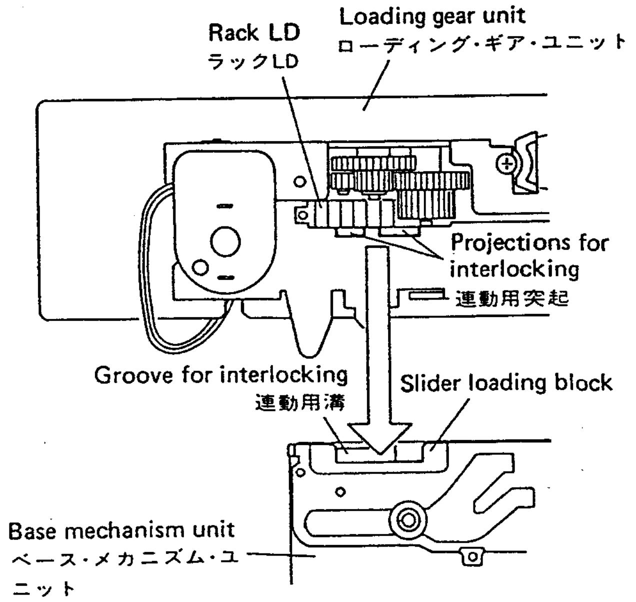
   Remove two screws ⓓ shown in Fig. 2-5, then remove the RF amp block.

   **Note:** Take care not to break the RF cable.

5. Removal of the loading gear unit
   - I. Disengage hooks Ⓐ and hook Ⓑ shown in Fig. 2-8, then remove the tape end sensor from side chassis (L).
   - II. Remove two screws ⓔ shown in Fig. 2-5, then remove the loading gear unit.

     **Note 1:** Take care not to break the cables.

     **Note 2:** When reinstalling the loading gear unit, mate the projections for interlocking shown in Fig. 2-9 with the groove for interlocking in the slider loading block of the base mechanism unit.



Rack LD
ラックLD
Loading gear unit
ローディング・ギア・ユニット
Projections for interlocking
連動用突起
Groove for interlocking
連動用溝
Slider loading block
Base mechanism unit
ベース・メカニズム・ユニット

Fig. 2-9

注．組立時はフックを穴に通し，プライヤー等で曲げ固定すること．このとき曲げの角度は，PCB DRIVER BLKがガタ付かない程度（約３０°～４５°）とする．又，PCB DRIVER BLKの取外しは，フックの金属疲労を考慮し２～３回を限度として下さい．

Ⅱ．図2-5 のビスⓐを外して，PCB DRIVE BLK を取外す．

２．ベルトを取外す．

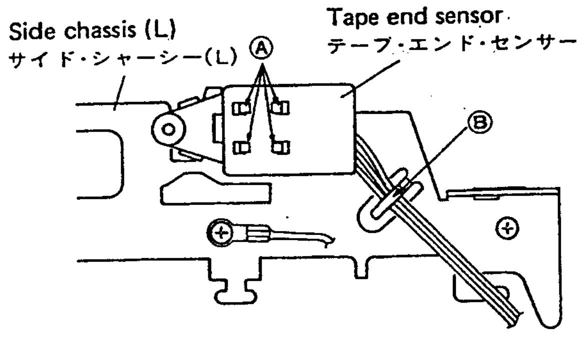
注．ベルトにグリス，異物を付着させないこと．

３．サブ・シャーシー・ユニットの取外し

図2-5 のネジⓑ３本とネジⓒを外し，サブ・シャーシー・ユニットを取外す．

注１．ネジⓒは自らタップを切るタイプなので，取外し，締め付け力には充分注意すること．

注２．サブ・シャーシー・ユニットをベース・メカ・ユニットに組込む際には，図2-7 のブレーキ(L)．(R) のボスを矢印方向に動かすこと．



Side chassis (L)
サイド・シャーシー(L)
Ⓐ
Tape end sensor
テープ・エンド・センサー
Ⓑ

Fig. 2-8

４．RF AMP BLKの取外し

図2-5 のネジⓓ２本を外し，RF AMP BLKを取外す．

注．RFケーブルの断線に注意すること．

５．ローディング・ギア・ユニットの取外し

Ⅰ．図2-8 のフックⒶとフックⒷを外し，テープ・エンド・センサーをサイド・シャーシー(L) より外す．

Ⅱ．図2-5 のネジⓔ２本を外し，ローディング・ギア・ユニットを取外す．

注１．線材の断線に注意すること．

注２．ローディング・ギア・ユニットを組込む際には，図2-9 の連動用突起をベース・メカニズム・ユニットの SLIDER LDG BLK の連動用溝に入れること．

## -4. Disassembly of the base mechanism unit (Fig. 2-10)

## ２－３－４．ベース・メカニズム・ユニットの分解（図2-10）

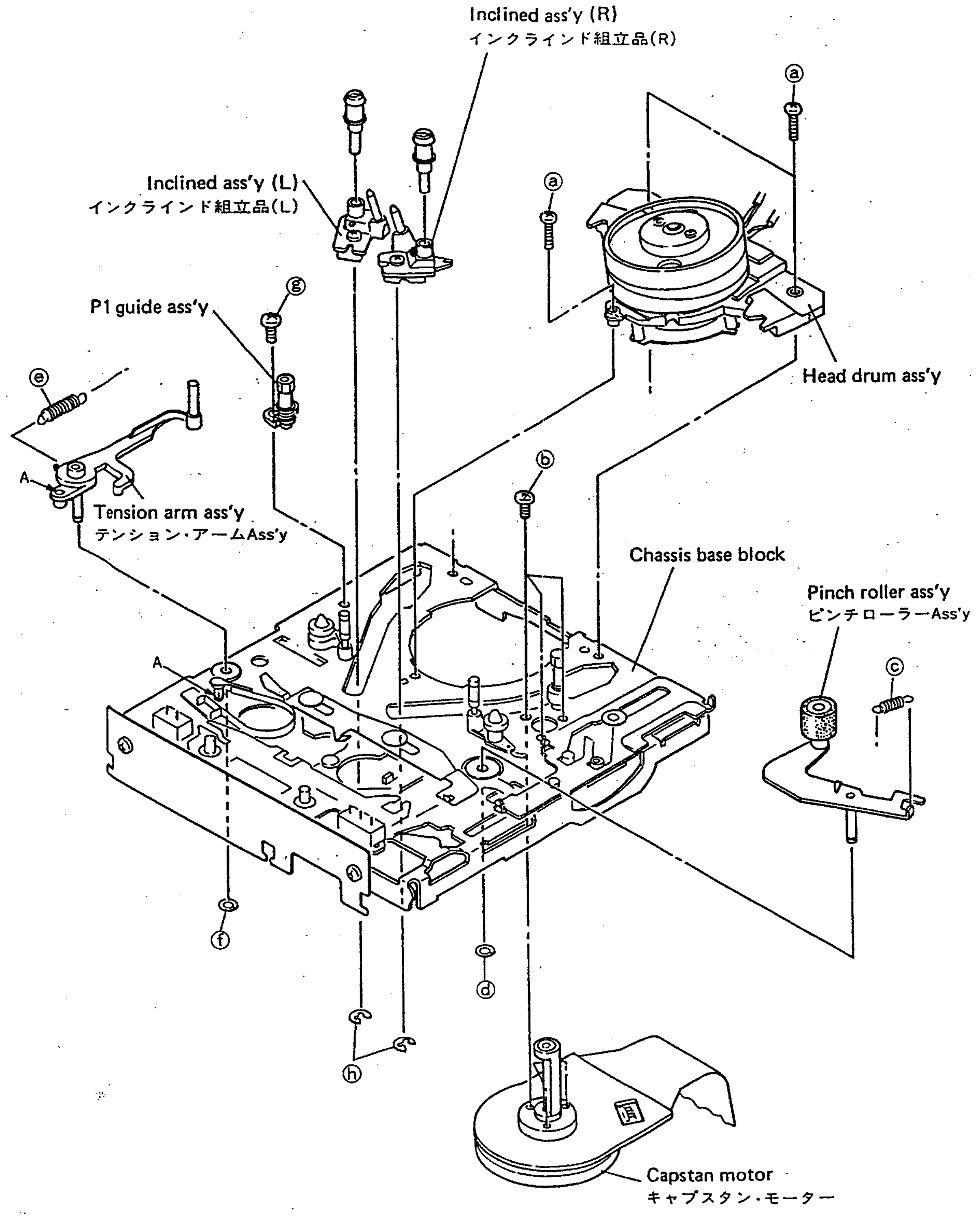


Fig. 2-10

1. Removal of the head drum ass'y
   Remove three screws ⓐ shown in Fig. 2-10, then remove the head drum ass'y.
   Note: Take care not to scratch the head drum. At the same time, when reinstalling the head drum ass'y, the tightening torque of screws ⓐ should be 1 kg·cm.
2. Removal of the capstan motor
   Remove three screws ⓑ shown in Fig. 2-10, then remove the capstan motor.
   Note: When reinstalling the capstan motor, the tightening torque of screws ⓑ should be 1 kg·cm.
3. Removal of the pinch roller ass'y
   I. Remove pinch roller spring ⓒ shown in Fig. 2-10.
   II. Remove washer ⓓ shown in Fig. 2-10, then remove the pinch roller ass'y.
   Note: Take care not to scratch the surface of the pinch roller with which the tape comes into contact.
4. Removal of the tension arm ass'y
   I. Remove spring ⓔ shown in Fig. 2-10.
   II. Disengage portion A and washer ⓕ shown in Fig. 2-10, then remove the tension arm ass'y.
   Note 1: Take care not to scratch the tension band.
   Note 2: Take care not to let grease adhere to the felt portion of the tension band.
   Note 3: Take care not to scratch the posts.
   Note 4: Take care not to apply strain to the tension arm ass'y.
5. Removal of the P1 guide ass'y
   Remove screw ⓖ shown in Fig. 2-10, then remove the P1 guide ass'y.
   Note: Take care not to scratch the surface of the post with which the tape comes into contact.
6. Inclined assemblies (L), and (R)
   Remove E-rings ⓗ shown in Fig. 2-10, then remove inclined assemblies (L) and (R).
   Note 1: Take care not to scratch the surface of the posts with which the tape comes into contact.
   Note 2: When installing inclined ass'y (L), install it so that the TG-R ass'y comes above inclined ass'y (L) as shown in Fig. 2-11.

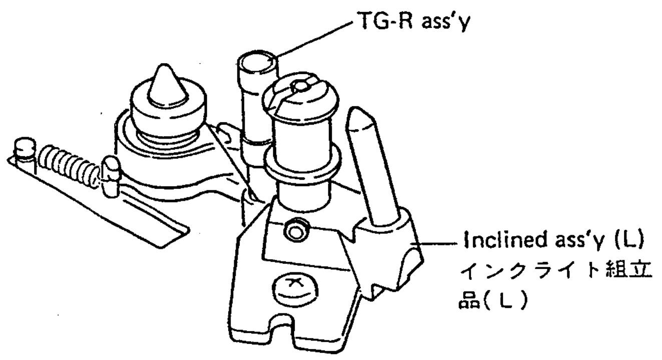


Fig. 2-11

１．CYL Assyの取外し

図2-10のネジⓐ3本を外し，CYL Assyを取外す．

注．シリンダーに傷を付けない様に注意すること．

又，CYL Assyの取付時，ネジⓐの締め付けトルクは 1Kg・cmのこと．

２．キャプスタン・モーターの取外し

図2-10のネジⓑ3本を外し，キャプスタン・モーターを取外す．

注．キャプスタン・モーターの取付時，ネジⓑの締め付けトルクは 1Kg・cmのこと．

３．ピンチ・ローラー Assy の取外し

Ｉ．図2-10のＰローラー・バネⓒを外す．

Ⅱ．図2-10のワッシャーⓓを外し，ピンチ・ローラー Assyを取外す．

注．ピンチ・ローラーのテープ走行面に傷を付けない様に注意すること．

４．テンション・アーム Assy の取外し

Ｉ．図2-10のバネⓔを外す．

Ⅱ．図2-10のＡの部分とワッシャーⓕを外し，テンション・アーム Assy を取外す．

注１．テンション・バンドに傷を付けない様に注意すること．

注２．テンション・バンドのフェルトにグリスが付着しない様に注意すること．

注３．ポストに傷を付けない様に注意すること．

注４．テンション・アーム Assy に歪を与えない様に注意すること．

５．P1 ガイド Assy の取外し

図2-10のネジⓖを外し，P1 ガイド Assy を取外す．

注．ポストのテープ走行面に傷を付けない様に注意すること．

６．インクラインド組立品(L)，(R)

図2-10のＥリングⓗを外して，インクラインド組立品(L)，(R) を取外す．

注１．ポストの走行面に傷を付けない様に注意すること．

注２．インクラインド組立品(L) の組込み時，図2-11の様にTG-R Assy がインクラインド組立品(L) の上側にくる様に取り付けること．

### 2-3-5. Disassembly of the sub-chassis unit (Fig. 2-12)

### ２－３－５．サブ・シャーシー・ユニットの分解（図2-12）

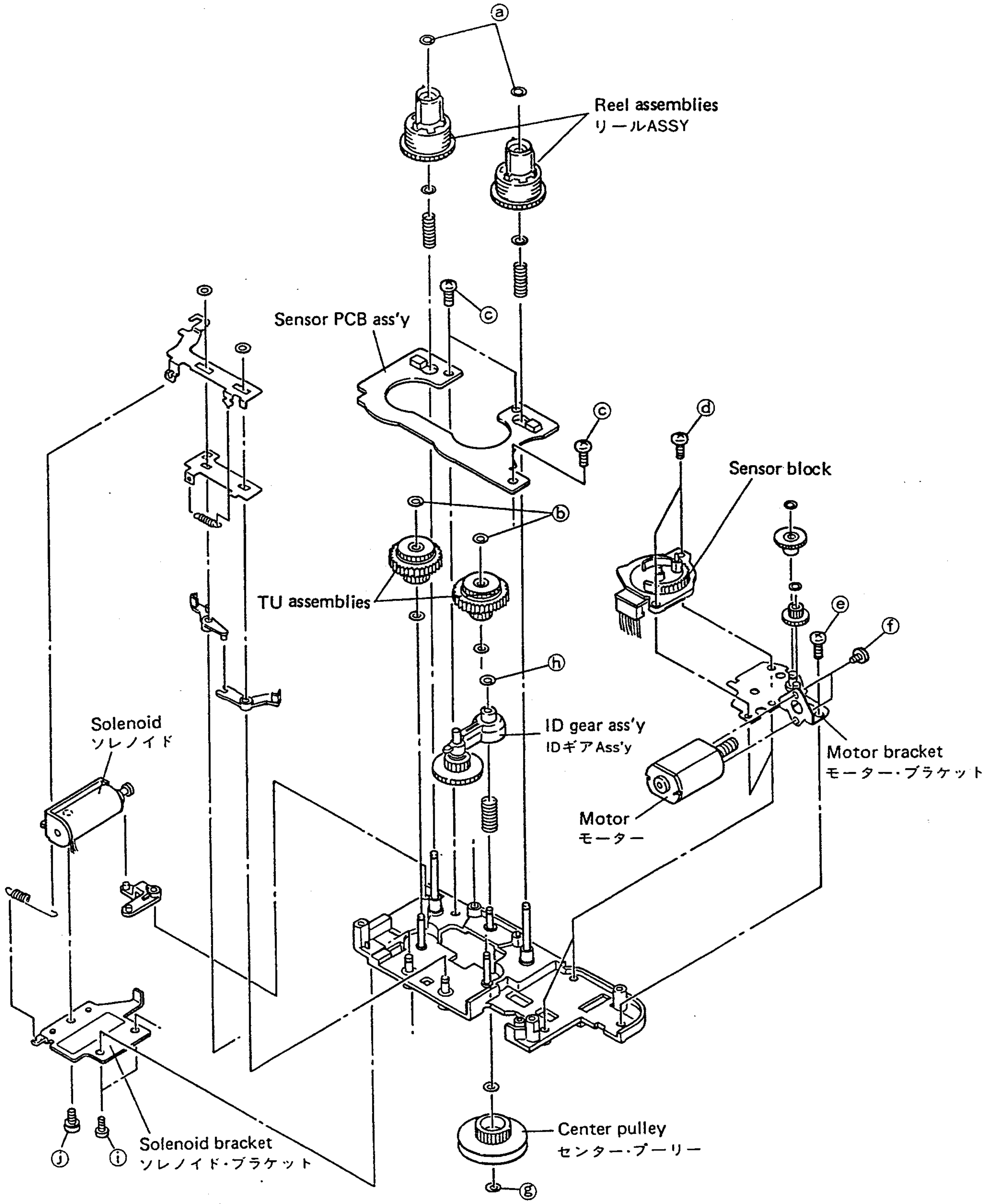


Fig. 2-12

1. Removal of the reel ass'y
   Remove washers ⓐ shown in Fig. 2-12, then remove the reel assemblies.
   **Note 1:** Take care so that grease does not adhere to the reflector plate of the reel assemblies.
   **Note 2:** When removing washers ⓐ, be careful not to scratch the reel assemblies.
2. Removal of the TU assemblies.
   Remove washers ⓑ shown in Fig. 2-12, then remove the TU assemblies.
   **Note:** Be careful not to damage the gears of the TU assemblies.
3. Removal of the sensor PCB ass'y
   Remove three screws ⓒ shown in Fig. 2-12, then remove the sensor PCB ass'y.
   **Note:** Take care not to let grease adhere to the sensor surface.
4. Removal of the sensor block
   Remove two screws ⓓ shown in Fig. 2-12, then remove the sensor block.
5. Removal of the motor bracket
   Remove screw ⓔ shown in Fig. 2-12, then remove the motor bracket.
   **Note:** Take care not to damage the gears.
6. Removal of the motor
   Remove two screws ⓕ shown in Fig. 2-12, then remove the motor.
7. Removal of the center pulley
   Remove washer ⓖ shown in Fig. 2-12, then remove the center pulley.
   **Note:** Take care not to let foreign object get into the metallic parts and do not damage them. Be careful that metallic parts do not come into contact with paper, etc.
8. Removal of the ID gear ass'y
   Remove washer ⓗ shown in Fig. 2-12, then remove the ID gear.
   **Note:** Take care not to scratch the gear.
9. Removal of the solenoid bracket
   Remove two screws ⓘ shown in Fig. 2-12, then remove the solenoid bracket.
10. Removal of the solenoid
    Remove screw ⓙ shown in Fig. 2-12, then remove the solenoid.
    **Note:** Be careful not to break the cables.

１．リール Assy の取外し
図2-12のワッシャーⓐを外し，リール Assy を取外す．
注１．リール Assy の反射板にグリスが付着しない様に注
意すること．
注２．ワッシャーⓐを外すとき，リール Assy に傷を付け
ない様に注意すること．

２．ＴＵ Assy の取外し
図2-12のワッシャーⓑを外し，ＴＵ Assy を取外す．
注．ＴＵ Assy のギア部に傷を付けない様に注意すること

３．SENSOR PCB Assy の取外し
図2-12のネジⓒ３本を外し，SENSOR BCB Assy を取外す．
注．センサー面にグリスが付着しない様に注意すること．

４．SENSOR BLKの取外し
図2-12のネジⓓ２本を外し，SENSOR BLKを取外す．

５．モーター・ブラケットの取外し
図2-12のネジⓔを外し，モーター・ブラケットを取外す．
注．各々のギア部に傷を付けない様に注意すること．

６．モーターの取外し
図2-12のネジⓕ２本を外し，モーターを取外す．

７．センター・プーリーの取外し
図2-12のワッシャーⓖを外し，センター・プーリーを取外
す．
注．メタル内に異物混入，傷を付けない様に注意すること
又，メタル面が紙等に触れないこと．

８．ＩＤギア Assy の取外し
図2-12のワッシャーⓗを外し，ＩＤギアを取外す．
注．ギアに傷を付けない様に注意すること．

９．ソレノイド・ブラケットの取外し
図2-12のネジⓘ２本を外し，ソレノイド・ブラケットを取
外す．

10．ソレノイドの取外し
図2-12のネジⓙを外し，ソレノイドを取外す．
注．線材の断線に注意すること．

### 2-3-6. Disassembly of the loading gear unit (Fig. 2-13)

### ２－３－６．ローディング・ギア・ユニットの分解 （図2-13）

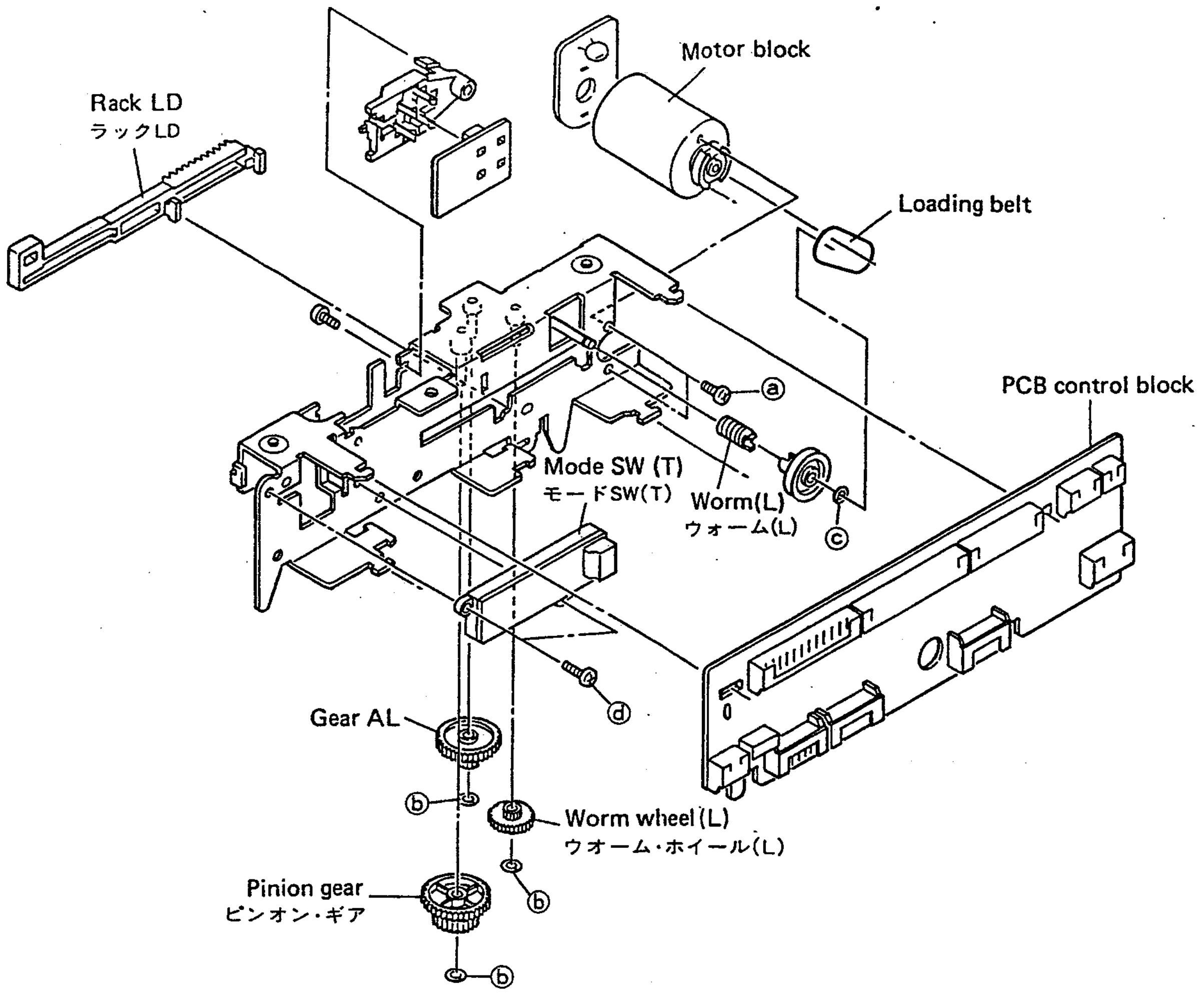

Motor block
Rack LD
ラックLD
Loading belt
ⓐ
PCB control block
Mode SW (T)
モードSW(T)
Worm(L)
ウォーム(L)
ⓒ
ⓓ
Gear AL
ⓑ
Worm wheel (L)
ウオーム・ホイール(L)
ⓑ
Pinion gear
ピンオン・ギア
ⓑ

Fig. 2-13

1. Removal of the PCB control block
   Bend back the two hooks over the holes (on lines A and B) shown in Fig. 2-14 using the pliers.

１．PCB CONTROL BLK の取外し
図2-14のフック２箇所の曲げをプライヤー等で穴上（A，B線上）に曲げ戻す．

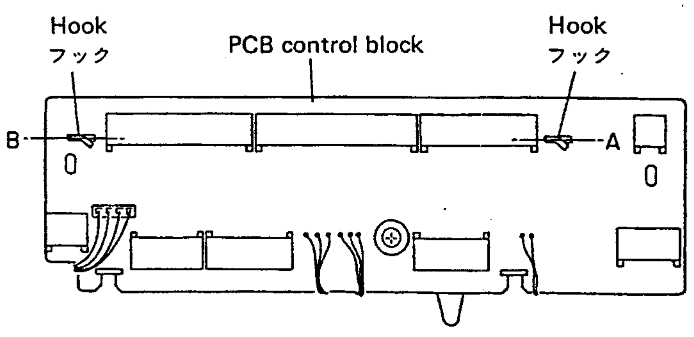

Hook
フック
PCB control block
Hook
フック
B
A

Fig. 2-14

**Note:** During assembly, feed the hook through the hole, then secure the hook using pliers, etc. by bending it. The angle of bending at this time should be such that the PCB control block does not wobble (approx. 30° to 45°). Do not remove the PCB control block more than two or three times in view of metal fatigue of the hook.

2. Removal of the motor block
   - I. Remove the loading belt shown in Fig. 2-13.
   - II. Remove two screws ⓐ shown in Fig. 2-13, then remove the motor block.
     **Note:** Be careful not to let the grease, etc. adhere to the loading belt.
3. Removal of each gear
   - I. Remove three washers ⓑ and washer ⓒ shown in Fig. 2-13.
   - II. Referring to Fig. 2-13, remove the gears in the order worm (L), rack LD, pinion gear, gear AL, and worm wheel (L).
     **Note:** Do not let any foreign object adhere to the teeth of the gears. Also be careful not to damage the gears.
4. Removal of the mode SW (T)
   Remove two screws ⓓ shown in Fig. 2-13, then remove mode SW (T).
   **Note:** When installing mode SW (T), align the hole in the rack LD with the knob on mode SW (T) (Fig. 2-15).

注．組立時はフックを穴に通し，プライヤー等で曲げて固定すること．このとき曲げの角度は，PCB CONTROL BLK がガタつかない程度（約３０°～４５°）とする．又，PCB CONTROL BLK の取外しは，フックの金属疲労を考慮し２～３回を限度として下さい．

２．MOTOR BLK の取外し
　Ⅰ．図2-13の LDGベルトを外す．
　Ⅱ．図2-13のネジⓐ２本を外し，MOTOR BLK を取外す．
注．LDG ベルトにグリス等を付着させないこと．

３．各ギアの取外し
　Ⅰ．図2-13のワッシャーⓑ３個とワッシャーⓒを外す．
　Ⅱ．図2-13のウォーム(L)，ラックＬＤ，ピンオン・ギア，ギアＡＬ，ウォーム・ホイール(L) の順で各ギアを取外す．
注．ギアの歯先に異物を付着させないこと．
又，ギアに傷を付けない様に注意すること．

４．モードＳＷ(T) の取外し
図2-13のネジⓓ２本を外し，モードＳＷ(T) を取外す．
注．モードＳＷ(T) の組立時，ラックＬＤの穴とモードＳＷ(T) のノブの位置を合せる．（図2-15）

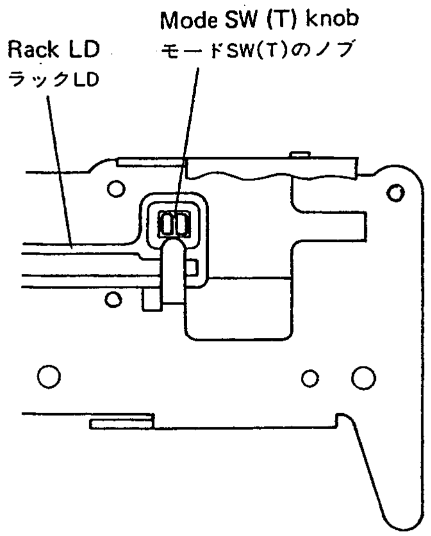

Mode SW (T) knob
モードSW(T)のノブ
Rack LD
ラックLD

Fig. 2-15

### 2-3-7. Disassembly of the cassette holder unit (Fig. 2-16)

### ２－３－７．カセット・ホルダー・ユニットの分解（図2-16）

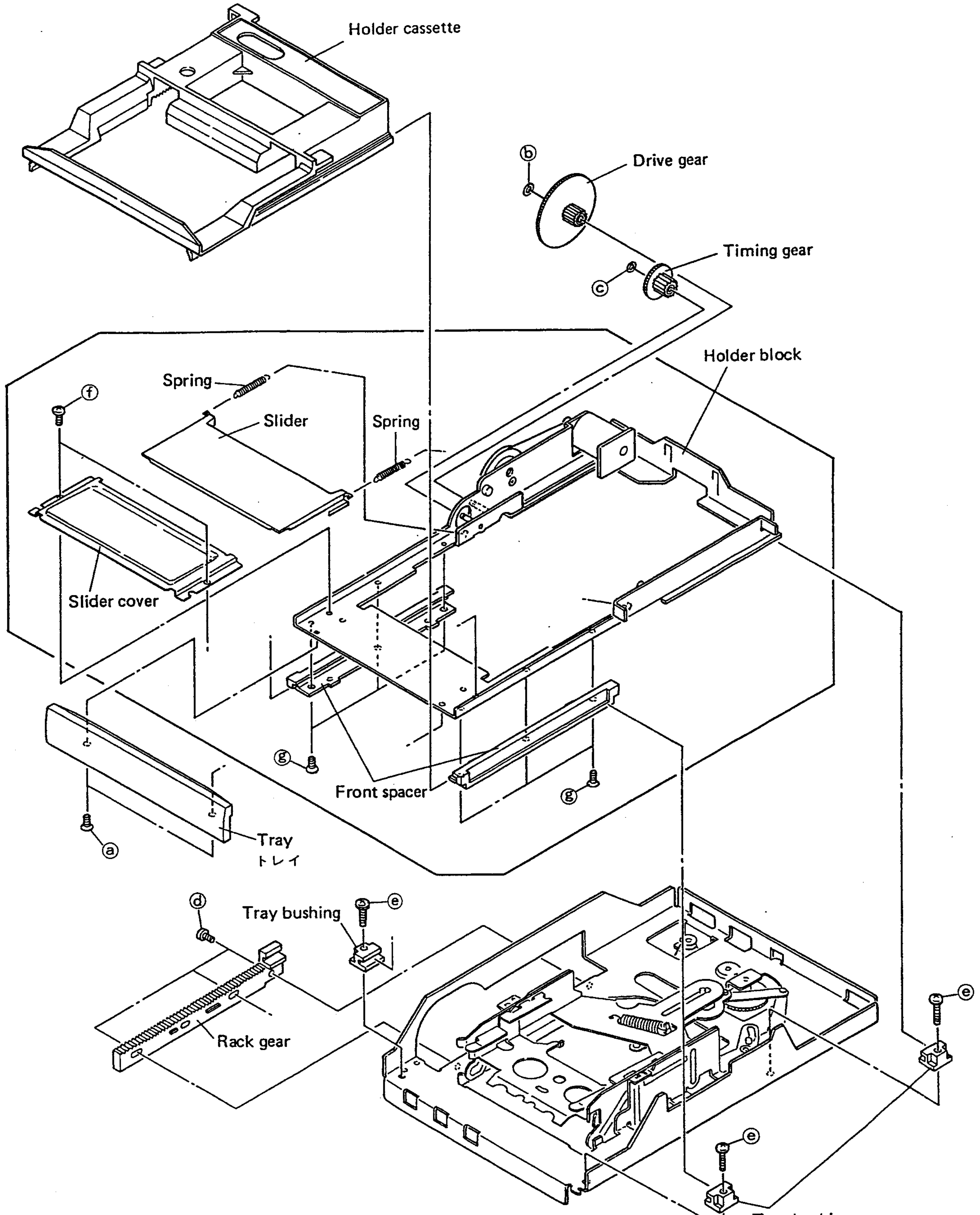


Fig. 2-16

1. Removal of the holder cassette
   - I. Remove two screws ⓐ shown in Fig. 2-16, then remove the tray.
   - II. Remove washers ⓑ and ⓒ shown in Fig. 2-16, then remove the drive gear and timing gear.
   - III. Remove the holder cassette shown in Fig. 2-16 by sliding it forward.

     **Note 1:** Handle the holder cassette with care so that it is not damaged, dented, etc.

     **Note 2:** When reinstalling the holder cassette, pull out the holder block fully forward (direction A in Fig. 2-17), then reinstall the timing gear with the front of the holder cassette positioned in accordance with the dimension (1.9 ± 0.4mm) given in Fig. 2-17.

1．HOLDER CASSETTE の取外し
   - Ⅰ．図2-16のネジⓐ２本を外し，トレイを取外す．
   - Ⅱ．図2-16のワッシャーⓑ，ⓒを外し，DRIVE GEAR，TIMING GEAR を取外す．
   - Ⅲ．図2-16のHOLDER CASSETTE を前面にスライドさせて取外す．

     注１．HOLDER CASSETTE に傷，打痕等を付けない様に取扱いを注意すること．

     注２．HOLDER CASSETTE 組み込み時は，HOLDER BLKを前面に完全に引出し（図2-17　A方向），HOLDER CASSETTE 前面を図2-17の寸法(1.9±0.4mm)に合せた状態で TIMING GEARを組み込むこと．

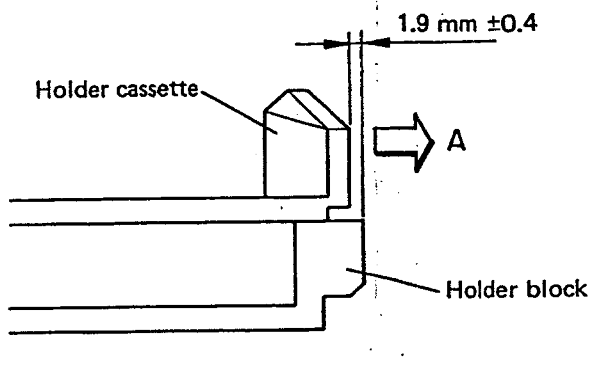


Fig. 2-17

2. Removal of the holder block
   - I. Remove three screws ⓓ shown in Fig. 2-16, then remove the rack gear.
   - II. Remove three screws ⓔ shown in Fig. 2-16, then remove three tray bushings.
   - III. Remove the holder block shown in Fig. 2-16.
3. Removal of the slider
   - I. Remove two springs shown in Fig. 2-16
   - II. Remove two screws ⓕ shown in Fig. 2-16, then remove the slider cover.
   - III. Remove six screws ⓖ shown in Fig. 2-16, then remove two front spacers.
   - IV. Remove the slider shown in Fig. 2-16.

     **Note:** Handle the slider with care so that it is not damaged, dented, etc.

2．HOLDER BLKの取外し
   - Ⅰ．図2-16のネジⓓ３本を外し，RACK GEAR を取外す．
   - Ⅱ．図2-16のネジⓔ３本を外し，TRAY BUSHING３個を取外す．
   - Ⅲ．図2-16のHOLDER BLKを取外す．

3．SLIDERの取外し
   - Ⅰ．図2-16のスプリング２本を外す．
   - Ⅱ．図2-16のネジⓕ２本を外し，SLIDER COVERを取外す．
   - Ⅲ．図2-16のネジⓖ６本を外し，FRONT SPACER２個を取外す．
   - Ⅳ．図2-16のSLIDERを取外す．

     注．SLIDERに傷，打痕等を付けない様に取扱いを注意すること．

### 2-3-8. Disassembly of the holder base block (Fig. 2-18)

### 2－3－8．HOLDER BASE BLK の分解（図2-18）

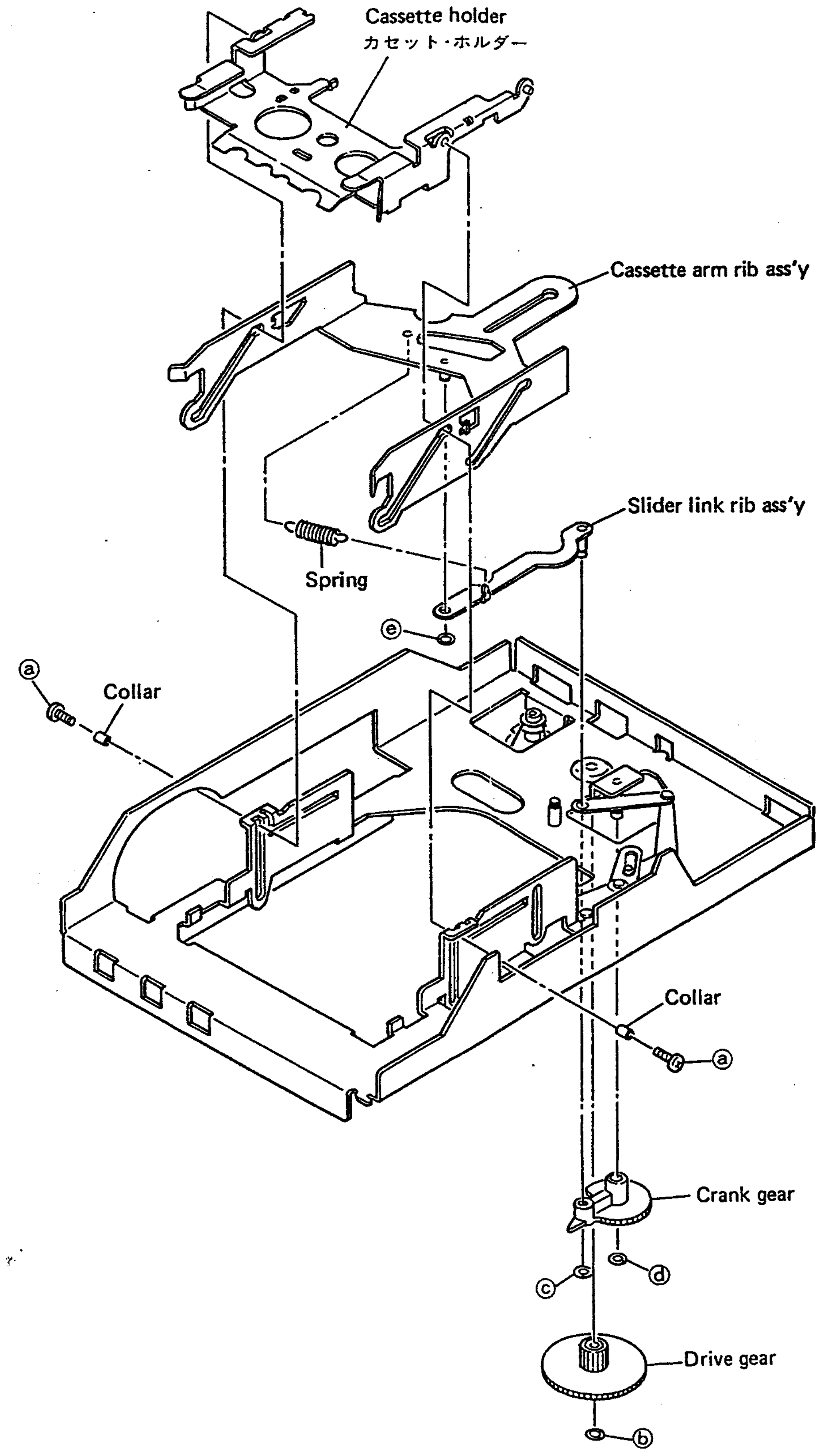

Cassette holder
カセット・ホルダー
Cassette arm rib ass'y
Slider link rib ass'y
Spring
ⓔ
ⓐ
Collar
Collar
ⓐ
Crank gear
ⓒ
ⓓ
Drive gear
ⓑ

Fig. 2-18

1. Removal of the cassette holder
   I. Remove two screws ⓐ and two collars shown in Fig. 2-18.
   II. Slide the cassette arm rib ass'y shown in Fig. 2-18 backward by approx. 15cm, then remove the cassette holder.
2. Removal of the cassette arm rib ass'y and slider link rib ass'y.
   I. Remove the spring shown in Fig. 2-18.
   II. Remove washer ⓑ shown in Fig. 2-18, then remove the drive gear.
   III. Remove washers ⓒ and ⓓ shown in Fig. 2-18, then remove the crank gear.
   IV. Remove washer ⓔ shown in Fig. 2-18, then remove the cassette arm rib ass'y and slider link rib ass'y.

1．カセット・ホルダーの取外し
   Ⅰ．図2-18のネジⓐ2本とCOLLAR2個を外す．
   Ⅱ．図2-18のCASSETTE ARM RIV Assy を後方へ約15cm程度スライドさせて，カセット・ホルダーを取外す．
2．CASSETTE ARM RIV Assy とSLIDER LINK RIV Assyの取外し
   Ⅰ．図2-18の SPRING を外す．
   Ⅱ．図2-18のワッシャーⓑを外し，DRIVE GEARを取外す．
   Ⅲ．図2-18のワッシャーⓒとワッシャーⓓを外し，CRANK GEARを取外す．
   Ⅳ．図2-18のワッシャーⓔを外し，CASSETTE ARM RIV Assy とSLIDER LINK RIV Assyを取外す．

# 3. ADJUSTMENT OF THE MECHANISM

# 機構部調整

This adjustment is performed when mechanical parts have been replaced or when torque value is adjusted or tape travel is erratic.

この調整は，機構部品を交換したときまたはトルク値，テープの走りが悪い場合に行ないます．

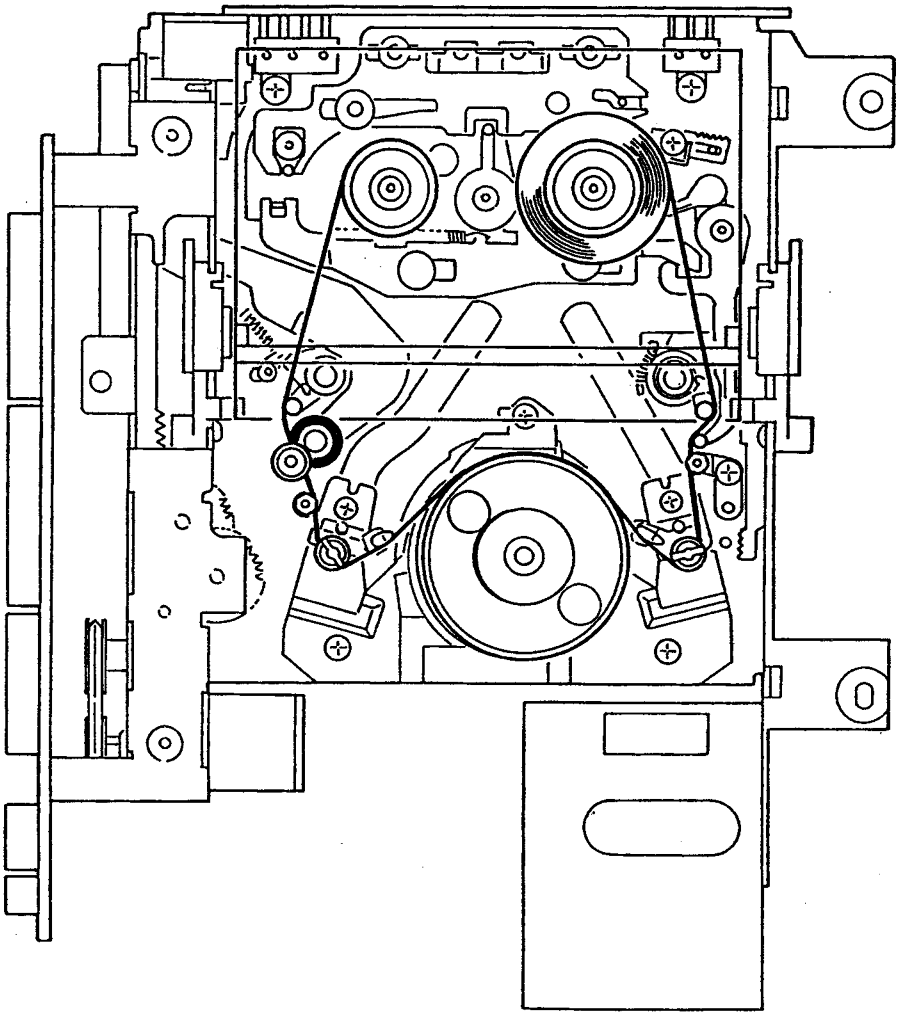


Fig. 3-1 Tape travel path

テープ走行経路

### 3-1. Back Tension Torque Adjustment

1. When reinstalling the mechanism ass'y into the main body, perform coarse adjustment of the top of the guide roller. Here, for temporary adjustment, loosen the setscrew shown in Fig. 3-2, then turn the screw on top of the guide roller using the wrench so that the guide roller shaft is flush with the surface indicated by the arrow.
   After adjustment is complete, gently tighten the setscrew. At this time, confirm that the guide roller can rotate with minimum friction.

### 3－1．バック・テンション・トルク調整

1．メカニズム Assy を本体に組み込む際，ガイド・ローラーの上規制を粗調整する．
ここでは仮調整なので，目安としてガイド・ローラーのシャフトが図3-2 の矢印の線上で面一となる様に，図3-2 のイモネジをゆるめてガイド・ローラー頭部のネジを二股レンチにより回して調整する．
調整後，イモネジを軽く締める．このとき，ガイド・ローラーが少し抵抗を持ちながら回転することを確認する．

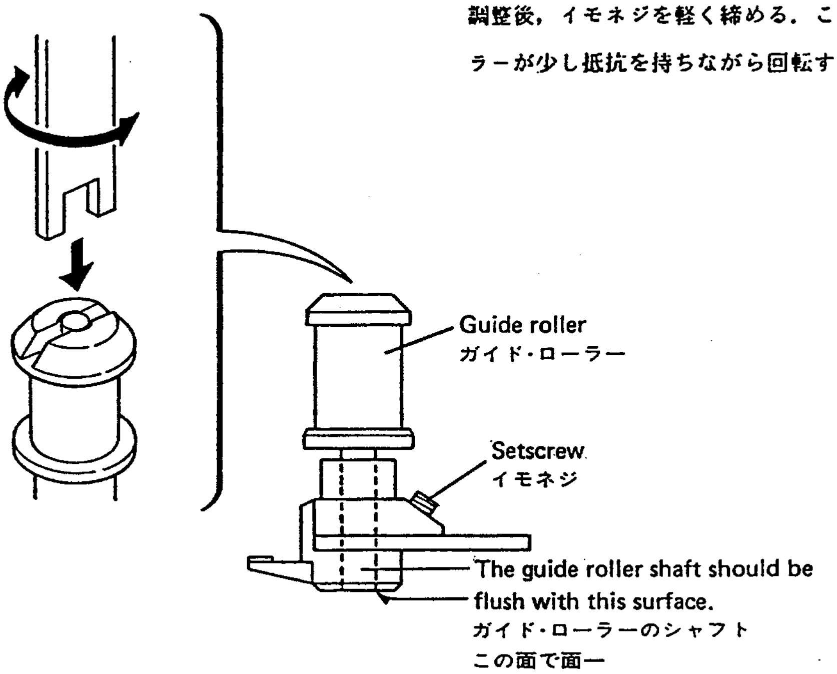

Guide roller
ガイド・ローラー
Setscrew
イモネジ
The guide roller shaft should be flush with this surface.
ガイド・ローラーのシャフト
この面で面一

Fig. 3-2

2. Install the mechanism ass'y into the main body.
3. Perform coarse adjustment of bottoms of the P1 and P2 posts. Here, since temporary adjustment is made, turn the top of the P1 and P2 posts using the hexagonal wrench so that the shafts of the posts protrude by about 1mm as shown in Fig. 3-3.

2．メカニズム Assy を本体に取り付ける．

3．P1 ポスト，P2 ポストの下規制を粗調整する．
ここでは仮調整なので，目安として図3-3 の様にP1 ポスト，P2 ポストのシャフトが上に1mm ぐらい出る様にP1．P2 ポストの頭を六角レンチにより調整する．

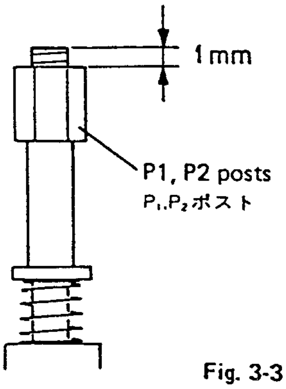

1mm
P1, P2 posts
P₁.P₂ポスト

Fig. 3-3

4. Load a tape, then let it run in the PLAY mode; referring to Fig. 3-4, the tension post should be positioned on the perpendicular line Y plotted below from the surface where the tape comes into contact with the P1 post or is positioned slightly within Y (at this time, see that the tape is wrapped around the P1 post), loosen screw (a), then adjust by moving molded part A to the right and left. After adjustment is complete, tighten screw (a).

4．テープを装着しＰＬＡＹモードで走らせ，図3-4 の様に，テンション・ポストがＰ1 ポストのテープ接触面から下方向に引いた垂線Ｙ上または，内側に若干入り込む（このときは，Ｐ1 ポストにテープがラップしていること）位置にくる様に，図3-4 のネジⓐをゆるめて成型品Ａを左右に動かし調整する。調整後，ネジⓐを締める。

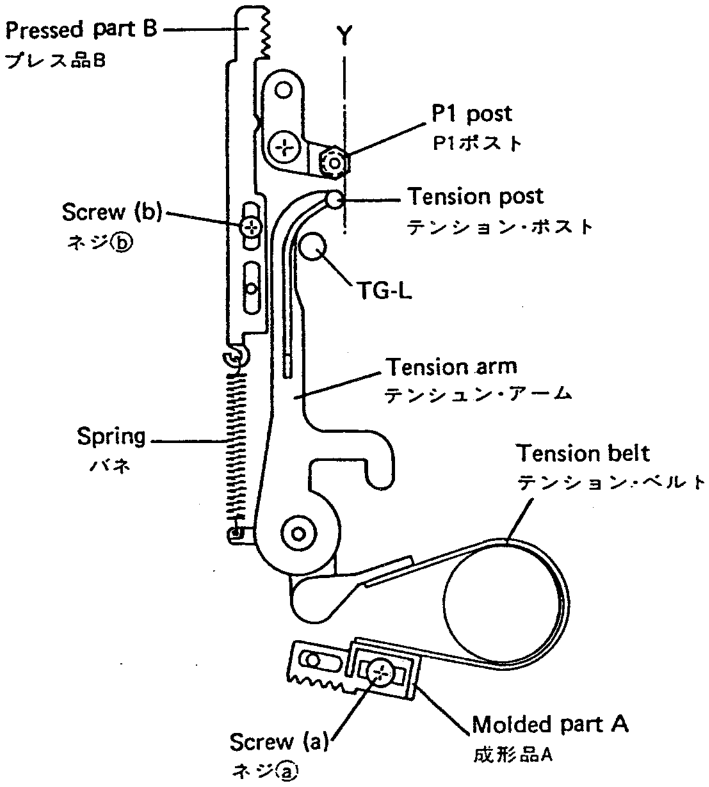

Pressed part B
プレス品B
Y
P1 post
P1ポスト
Screw (b)
ネジⓑ
Tension post
テンション・ポスト
TG-L
Tension arm
テンシュン・アーム
Spring
バネ
Tension belt
テンション・ベルト
Screw (a)
ネジⓐ
Molded part A
成形品A

Fig. 3-4

**Note:** When adjusting molded part A, manually turn the drive gear (Fig. 2-18) to elevate the cassette holder, then, move the cassette holder to the upper edge and adjust screw (a) through the cassette holder hole through which the reel ass'y comes out.

注）．成型品Ａを調整するときは，カセット・ホルダー昇降用ギア(DRIVE GEAR)（図2-18）を手動で回し。カセット・ホルダーを上端に移動させ，リール ASSY の出るカセット・ホルダーの穴からネジⓐを調整して下さい。

5. Load the torque measuring tape (TW-7111 manufactured by SONY), and measure the back tension torque in the REC/PLAY mode. At this time, loosen screw (b) shown in Fig. 3-4, then adjust the position of pressed part B so that the center of the reading of the back tension torque value is 6.5 to 8.5 g.cm. After adjustment is complete, tighten screw (b).
Adjust pressed part B using the regular screwdriver which is inserted through the hole shown in Fig. 3-5.

5．トルク測定用テープ(SONY 製 TW-7111) を装着し，REC/PLAYモードにてバック・テンション・トルクを測定する．このとき，バック・テンション・トルク値の振れ幅の中心が 6.5～8.5g・cmになる様に，図3-4 のネジⓑをゆるめてプレス品Bの位置を調整する．プレス品Bは，図3-5 の穴からマイナス・ドライバーを入れて調整して下さい．調整後，ネジⓑを締める．

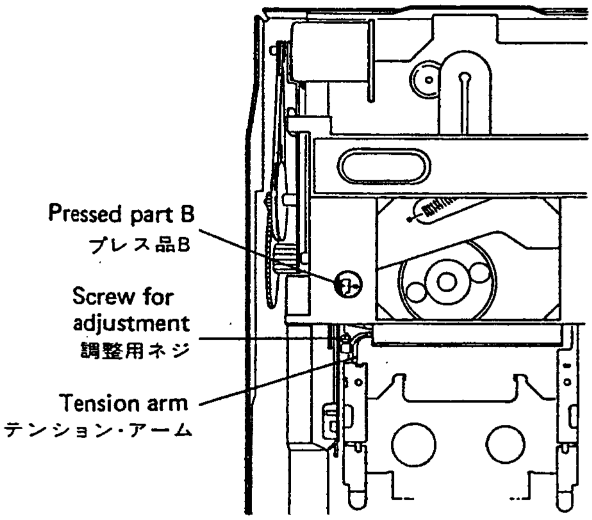

Pressed part B
プレス品B
Screw for adjustment
調整用ネジ
Tension arm
テンション・アーム

Fig. 3-5

**Note:** At this time, the tape should be wrapped around the P1 post, tension post and TG-L.

6. While adjusting the position of pressed part B, if the torque value does not fall within 6.5 to 8.5 g.cm, move molded part A again to the right and left; then after that, adjust the position of pressed part B.

注．このとき，P1 ポスト，テンション・ポスト，TG－L にラップしていること．

6．プレス品Bの調整で，規格の 6.5～8.5g・cmに入らない場合は，再度成型品Aを左右に動かし，その後プレス品Bの位置を調整する．

### 3-2. Tape Travel Adjustment

### 3－2．テープ走行調整

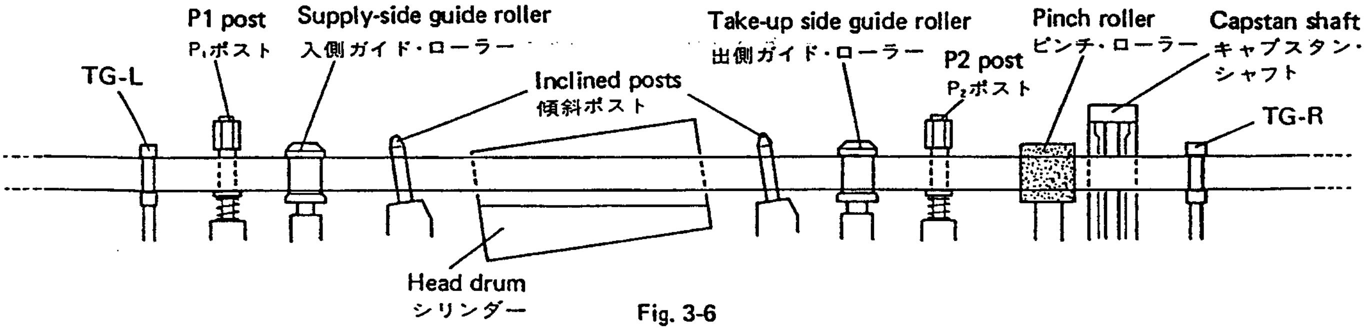

TG-L
P1 post
P₁ポスト
Supply-side guide roller
入側ガイド・ローラー
Inclined posts
傾斜ポスト
Head drum
シリンダー
Take-up side guide roller
出側ガイド・ローラー
P2 post
P₂ポスト
Pinch roller
ピンチ・ローラー
Capstan shaft
キャプスタン・シャフト
TG-R

Fig. 3-6

Prior to adjustment, clean dirt or dust off all posts and the head drum other than the guide roller using a cotton swab moistened with Diflon.
Gently wipe the guide roller with a cotton swab moistened with alcohol.

調整の前にガイド・ローラー以外の各走行ポスト及びシリンダーの汚れを，ダイフロンを綿棒に浸し拭きとって下さい．
尚，ガイド・ローラーはアルコールを綿棒に浸し，軽く拭きとって下さい．

1. Load the tape travel adjustment tape (TY-7251 manufactured by SONY), then let it run in the PLAY mode.
2. From the position where the heads of the P1 and P2 posts are coarse-adjusted using the hexagonal wrench described in 3-1 (back tension torque adjustment), rotate these by one turn clockwise to disengage lower adjustment.
3. Connect CH1 of the oscilloscope to TP412 (ENV) on the digital PCB and CH2 to TP407 (SWH) (Fig. 4-1), then adjust the height of the guide roller while observing the envelope of the RF signal.
4. Adjustment methods
   I. Turn the screw on top of the supply-side guide roller clockwise using the wrench and adjust so that the envelope of the supply side has a parallel section (Fig. 3-7).

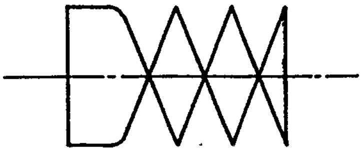


Fig. 3-7

   II. Try turning the screw on top of the take-up side guide roller clockwise and counterclockwise to eliminate narrowing of the envelope (Fig. 3-8).

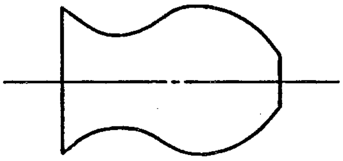


Fig. 3-8

   III. Gently turn both guide rollers alternately clockwise so that the envelope has the shape shown in Fig. 3-9. At this time, the lower edge of the tape should be fully on the drum lead.

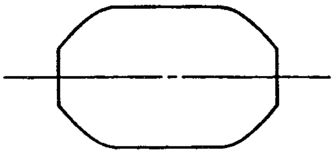


Fig. 3-9

1．走行調整用テープ(SONY 製 TY-7251) を装着し，ＰＬＡＹモードで走らせる．
2．Ｐ1，Ｐ2 ポストの頭を六角レンチにて，３－１項（バック・テンション・トルク調整）で粗調整した位置から１回転ぐらい時計方向に回して下規制を外す．
3．オシロスコープのCH1 をデジタルＰＣＢの TP412(ENV) に，CH2 をTP407(SWH)（図4-1 ）に接続し，ＲＦ信号のエンベロープを観測しながら，ガイド・ローラーの高さを調整する．
4．調整方法
   Ⅰ．入側ガイド・ローラーの頭部のネジを二股レンチにより右に回し，エンベロープの入側に平行部が発生する様に調整する．（図3-7 ）
   Ⅱ．出側ガイド・ローラーの頭部のネジを左右に回してみて，エンベロープのクロス・トラックを無くす様にする．（図3-8 ）
   Ⅲ．両側のガイド・ローラーを少しずつ互いに右に回し，エンベロープを図3-9 の様な形状にする．
   このとき，テープの下エッジがシリンダーのリードに完全に乗っている状態になります．

IV. Gently turn the screws on tops of both guide rollers alternately counterclockwise so that the envelope has the shape shown in Fig. 3-10. The shape of the envelope when the tape is running outside the drum lead is shown in Fig. 3-11.

Ⅳ. 両側のガイド・ローラーの頭部のネジを少しずつ互いに左に回し，エンベロープを図3-10の様な形状にする．テープがシリンダーのリードから外れて走行している場合のエンベロープの形状は，図3-11の様になります．

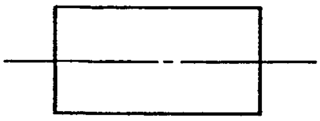


Fig. 3-10

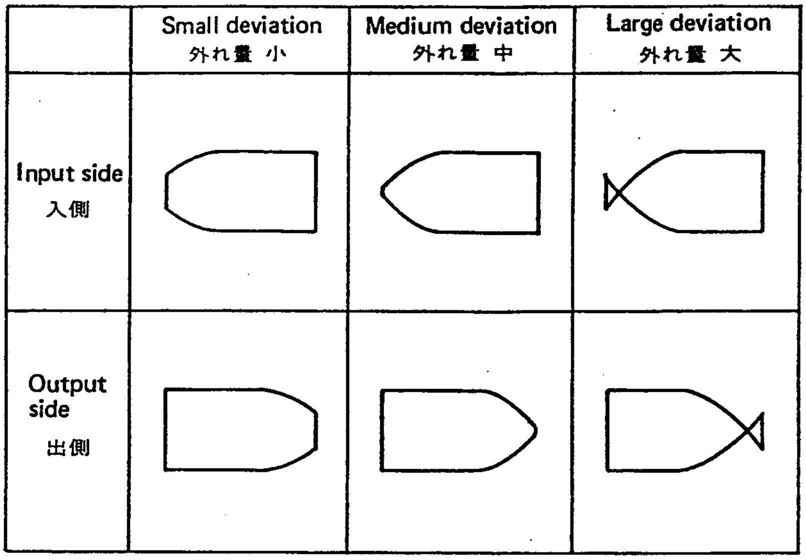


Fig. 3-11

V. After the adjustment of the guide rollers is complete, tighten the setscrews (Fig. 3-2) securing the guide rollers using the hexagonal wrench. (The tightening torque should be 1 kg.cm.)

5. After the adjustment is complete, eject the tape, then load it again and confirm whether or not the envelope is as shown in Fig. 3-10. If it isn't, go back to 4, then perform adjustment again.
6. After adjustment is complete, check to make sure the tape is not curled around the guide rollers.
7. Turn the heads of the P1 and P2 posts counterclockwise using the hexagonal wrench, and adjust so that the lower edge of the tape is positioned correctly when the tape is running. Adjust so that the tape is seen to run along the post flange. At this time, see that the tape is free from curling.

Ｖ．ガイド・ローラーの調整後，六角レンチにてガイド・ローラーを固定しているイモネジ（図3-2 ）を締める．（締め付けトルクは，1Kg・cmのこと）

5．調整後，一度ＥＪＥＣＴし，再度ローディングを行いエンベロープが，図3-10の様な形状になっているかを確認する．なっていない場合は，再度４項に戻って調整する．

6．調整終了後，ガイド・ローラーでテープがカールしていないことを確認する．

7．Ｐ1，Ｐ2 ポストの頭を六角レンチにて左に回し，テープを下規制させる．
調整は，目視で行いポスト・フランジにテープを沿わせる様にする．このとき，テープのカールがない様に注意すること．

# 4. ELECTRICAL ADJUSTMENTS

# 電気系調整

***Measuring conditions**

1. Environment
   There should be no draft.
   Temperature: 5 to 35°C
   Humidity: 30 to 90%
2. Supply voltage
   ± 2.5% of the rating
3. Line frequency
   50 (60) Hz ±1%
4. Ambient illumination and noise
   400 lux or more, 40 phons or less

***Definition**

1. 0 dBV is equal to 1.0 V.
2. The output impedance is 10 kilohm unless otherwise noted.
3. The reference playback output refers to a LINE OUTPUT of 2.0 ±0.5 V when PGM NO. [1] (1 kH, 0 dBV) of the test tape TY-7551 is played back.
4. The reference recording input/output refers to a LINE OUTPUT of 2.0 ±0.5 V immediately before the OVER of the level meter lights with the INPUT LEVEL volume adjusted when the test tape TY-30B is loaded and the unit is set to the recording monitor mode (the REC button is pressed) with a signal level of 2.0 V (+6 dBV) being input from the LINE IN.

**※測定条件**

| | |
|---|---|
| 1．環境 | 周囲無風　温度　5 〜35℃<br>湿度　30 〜90% |
| 2．電源電圧 | 定格値の±2.5% |
| 3．電源周波数 | 50(60Hz)±1% |
| 4．周囲照明と騒音 | 400lux以上，40ホーン以下 |

**※定義**

1．0dBV=1.0V とする。

2．出力インピーダンスは注記の無い限り 10KΩとする。

3．再生基準出力状態とは，テスト・テープ TY-7551の PGM NO.「１」(1KHz.0dBV) を再生し，LINE OUTPUT が2.0±0.5Vの状態をいう。

4．録音基準入出力状態とは，テスト・テープ TY-30B を装着しREC モニター(RECボタンのを押す) 状態のとき，LINE IN より 2.0V(+6dBV)を入力し INPUT LEVELボリュームを調整し，レベルメーターの「OVER」点灯直前の LINE OUTPUTが 2.0±0.5Vの状態いう。

## 4-1. Adjustment of the Servo System

***PCB to be adjusted: Digital PCB (Fig. 4-1)**

## ４－１．サーボ系調整

**＊調整ＰＣＢ　：　デジタルＰＣＢ（図４－１）**

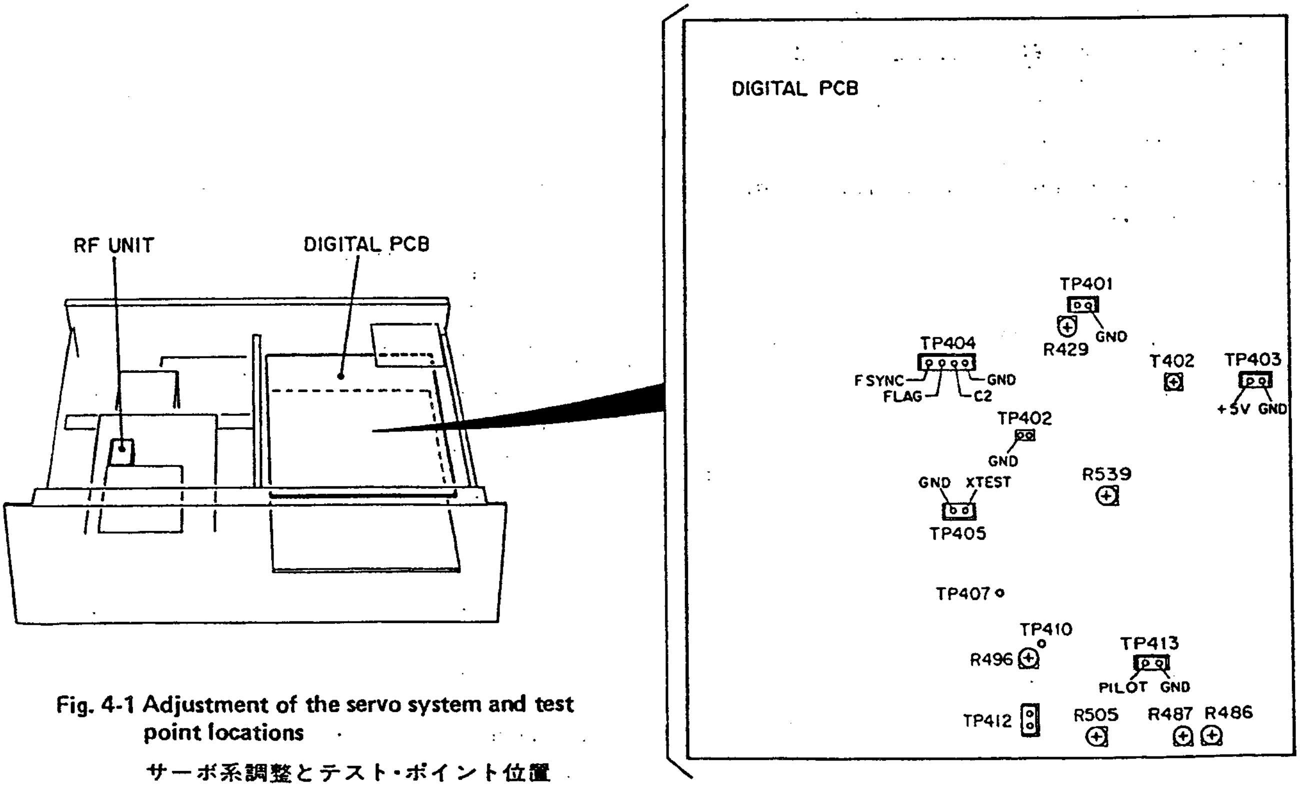

RF UNIT
DIGITAL PCB
DIGITAL PCB
TP401
R429
GND
TP404
F SYNC
FLAG
GND
C2
T402
TP403
+5V GND
TP402
GND
GND XTEST
TP405
R539
TP407
TP410
R496
TP413
PILOT GND
TP412
R505
R487 R486

Fig. 4-1 Adjustment of the servo system and test point locations

サーボ系調整とテスト・ポイント位置

## 1. Details of each TP terminal

- TP401 No. 1 PL free-running frequency output terminal
  - No. 2 GND
- TP402 No. 1 PLL shorting terminal – shorted to ground when the PLL free-running frequency is adjusted.
  - No.2 GND
- TP403 No. 1 +5V – + power supply of error rate counter
  - No. 2 GND – GND of error rate counter
- TP404 No. 1 FSYNC – frame sync signal output terminal
  - No. 2 FLAG – error correction flag output terminal
  - No. 3 C2 – C correction error output terminal
  - No. 4 GND
- TP405 No. 1 XTEST – TEST terminal (shorted to GND during testing)
  - No. 2 GND
- TP407 SWH – switching pulse output terminal
- TP410 ENV OUT – envelope output terminal
- TP412 No. 1 ENV – envelope output terminal
  - No. 2 GND
- TP413 No. 1 PILOT – ATF pilot signal output terminal
  - No. 2 GND

## 1. 各ＴＰ端子の内容

- TP401 NO.1 PLL 自走周波数出力端子
  - NO.2 GND
- TP402 NO.1 PLL ショート端子--- PLL 自走周波数調整時 GNDに落す。
  - NO.2 GND
- TP403 NO.1 +5V---エラーレート・カウンター+ 電源
  - NO.2 GND---エラーレート・カウンター GND
- TP404 NO.1 FSYNC---フレーム同期信号出力端子
  - NO.2 FLAG ---エラー訂正フラグ出力端子
  - NO.3 C2 ---C 訂正エラー出力端子
  - NO.4 GND
- TP405 NO.1 XTEST---TEST端子(TEST 時 GNDに落す)
  - NO.2 GND
- TP407 SWH---スイッチング・パルス出力端子
- TP410 ENV OUT---エンベロープ出力端子
- TP412 NO.1 ENV---エンベロープ出力端子
  - NO.2 GND
- TP413 NO.1 PILOT---ATF パイロット信号出力端子
  - NO.2 GND

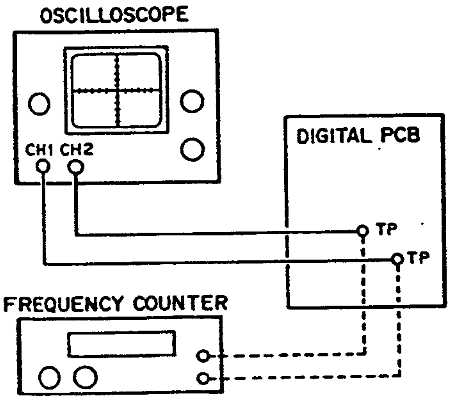

OSCILLOSCOPE
CH1 CH2
DIGITAL PCB
TP
TP
FREQUENCY COUNTER

Fig. 4-2 Connection of test points for measurement
各端子の測定

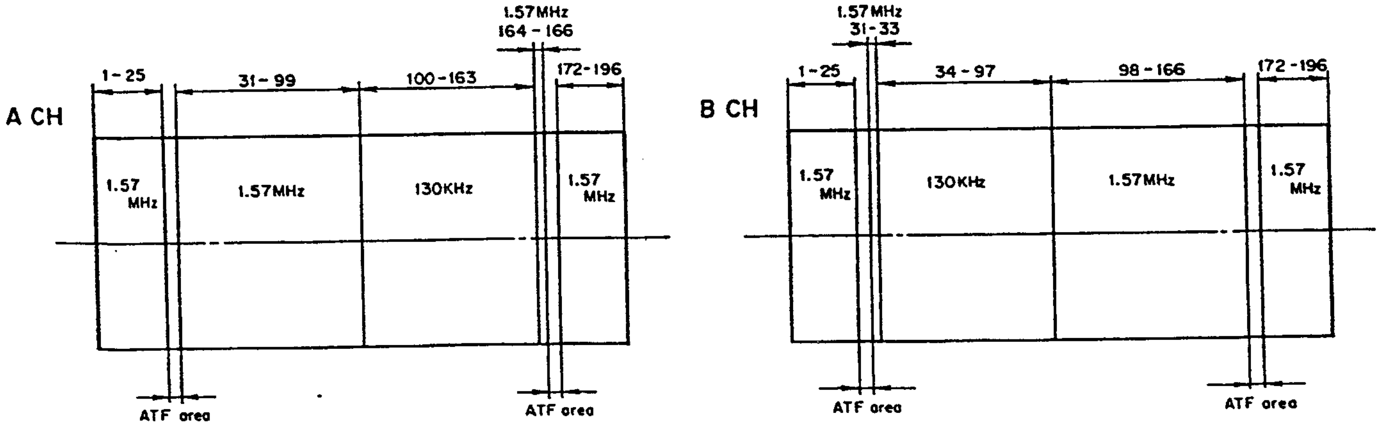

A CH
1-25
31-99
100-163
1.57MHz
164-166
172-196
1.57 MHz
1.57MHz
130KHz
1.57 MHz
ATF area
ATF area
B CH
1.57MHz
31-33
1-25
34-97
98-166
172-196
1.57 MHz
130KHz
1.57MHz
1.57 MHz
ATF area
ATF area

Fig. 4-3 Frequency patterns of the level checking test tape (TY-7111)
レベル用テープ(TY-7111)周波数パターン

2. Test tape
1) Torque cassette
- TW-7131 manufactured by SONY
- TW-7232A manufactured by SONY

2) Tracking
- TY-7251 manufactured by SONY

3) Level
- TY-7111 manufactured by SONY

4) Function
- TY-7551 manufactured by SONY

5) Blank tape
- TY-30B manufactured by SONY or equivalent

**3. Adjustment of the take-up torque during unloading**

1) Load the torque cassette TW-7231A.
2) Press the OPEN/CLOSE button, then adjust semi-fixed resistor R539 so that the torque of the supply side reel is 30 to 40 g.cm the instant the unloading state is entered.

**4. Checking the FF/REW torque**

1) Short TP405 PIN1 (XTEST) to ground (short TP405 using the shorting pin).
2) Load the torque cassette TW-7231A.
3) When the unit is set to the FF mode, check that the torque of the take-up reel is 60 g.cm or more.
4) When the unit is set to the REW mode, check that the torque of the supply reel is 60 g.cm or more.
5) Disconnect the shorting pin of TP405.

**5. Checking PLAY torque**

1) Load the torque cassette TW-7131.
2) Check that the torque of the take-up reel is 10 to 20 g.cm when the unit is set to the PLAY mode.

**6. Checking the back tension torque**

1) Load the torque cassette TW-7131.
2) Check that the torque of the supply reel is 4 to 10 g.cm when the unit is set to the PLAY mode.

2．テスト・テープ

1）．トルク・カセット
- ・ソニー製　TW-7131
- ・ソニー製　TW-7232A

2）．トラッキング用
- ・ソニー製　TY-7251

3）．レベル用
- ・ソニー製　TY-7111

4）．ファンクション用
- ・ソニー製　TY-7551

5）．ブランク・テープ
- ・ソニー製　TY-30B相当品

3．アンローディング時巻取トルク調整

1）．トルク・カセット TW-7231A を装着する．

2）．OPEN/CLOSEキーを押して，アンローディング状態になった瞬間のサプライ側リールのトルクが，30～40g.cmになるように半固定抵抗 R539 を調整する．

4．ＦＦ／ＲＥＷトルク確認

1）．TP405 PIN 1(XTEST)を GNDに落す．(TP405をショート・ピンによりショートする．）

2）．トルク・カセット TW-7231A を装着する．

3）．ＦＦモードにしたとき，テイク・アップ側リールのトルクが，60g.cm以上であることを確認する．

4）．ＲＥＷモードにしたとき，サプライ側リールのトルクが，60g.cm以上であることを確認する．

5）．TP405 のショート・ピンを外す．

5．ＰＬＡＹトルク確認

1）．トルク・カセット TW-7131を装着する．

2）．ＰＬＡＹモードにしたとき，テイク・アップ側リールのトルクが，10～20g.cmであることを確認する．

6．バック・テンション　トルク確認

1）．トルク・カセット TW-7131を装着する．

2）．ＰＬＡＹモードにしたとき，サプライ側のトルクが，4～10g.cmであることを確認する．

### 7. Checking the tape path

1) Connect CH-1 of the oscilloscope to TP412 (ENV) and CH-2 to TP407 (SWH).
2) Short TP405 PIN1 (XTEST) to ground (short TP405 using the shorting pin).
3) Load the tracking test tape TY-7251, then set the unit to the PLAY mode.
4) As shown in Fig. 4-4, confirm that 80 % or more of the RF waveform is flat.
5) Disconnect the shorting pin from TP405.

### ７．テープ・パス確認

１）．オシロ・スコープのCH-1をTP412(ENV)に，CH-2をTP407(SWH)にそれぞれ接続する．
２）．TP405 PIN 1(XTEST)を GNDに落す．(TP405をショート・ピンによりショートする．)
３）．トラッキング用テスト・テープ TY-7251を装着し，ＰＬＡＹモードにする．
４）．図4-4 の様に，ＲＦ波形の平坦度が 80%以上あることを確認する．
５）．TP405 のショート・ピンを外す．

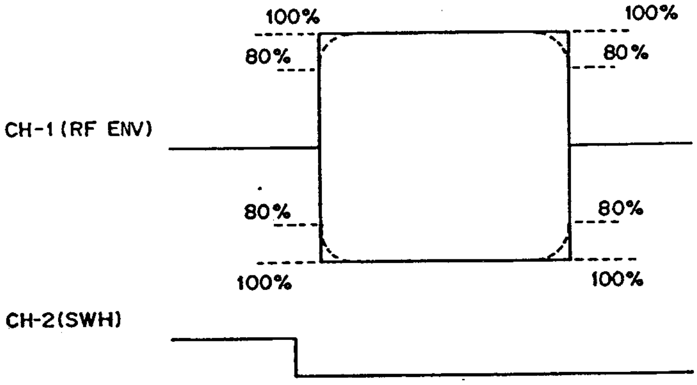


Fig. 4-4

### 8. Adjustment of TACH

1) Connect CH-1 of the oscilloscope to TP412 (ENV) and CH-2 to TP410 (TACH).
2) Load the tracking test tape TY-7251, then set the unit to the PLAY mode.
3) Adjust semi-fixed resistor R496 so that the time from the leading edge of the TACH waveform to the marker of the RF waveform is 803.6 ±15 us, as shown in Fig. 4-5.

### ８．ＴＡＣＨ調整

１）．オシロ・スコープのCH-1をTP412(ENV)に，CH-2をTP410(TACH) にそれぞれ接続する．
２）．トラッキング用テスト・テープ TY-7251を装着し，ＰＬＡＹモードにする．
３）．図4-5 の様に，ＴＡＣＨ波形の立下りからＲＦ波形のマーカーまでの時間が，803.6 ±15μs になるように半固定抵抗 R496 を調整する．

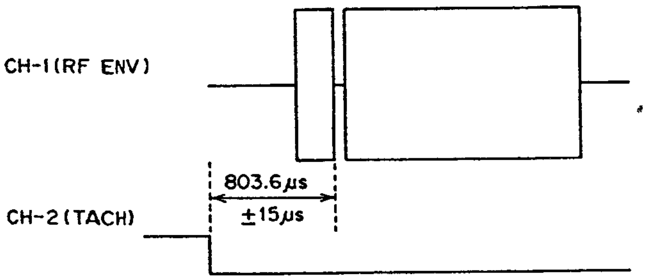


Fig. 4-5

## 9. Adjustment of ATF GAIN

1) Connect CH-1 of the oscilloscope to TP413 (PILOT) and CH-2 to TP407 (SWH).
2) Load the level test tape TY-7111, then set the unit to the PLAY mode.
3) Adjust semi-fixed resistor R487 for head A and R486 for head B so that the 130 kHz pilot signal (levels A and B) are 200 ± 20 mV as shown in Fig. 4-6. At this time, the difference in output between level A and level B should be 20 mV or less.

## 9．ＡＴＦ　ＧＡＩＮ調整

１）．オシロ・スコープのCH-1をTP413(PILOT)に，CH-2をTP407(SWH)にそれぞれ接続する．
２）．レベル用テスト・テープ TY-7111を装着し，ＰＬＡＹモードにする．
３）．図4-6 の様に，130KHzのパイロット信号（レベルＡ，Ｂ）が 200±20mVになるように，Ａヘッドについては半固定抵抗 R487 ，Ｂヘッドについては半固定抵抗 R486 を調整する．又，このときＡ，Ｂの出力差は，20mV以下であること．

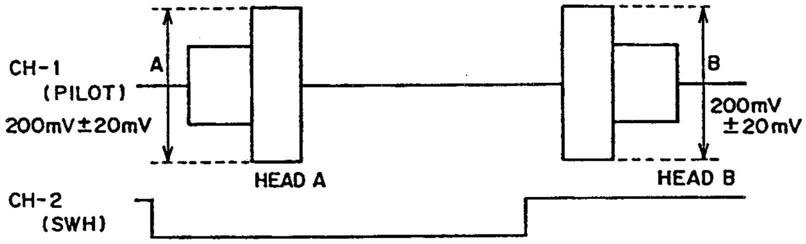


Fig. 4-6

## 10. Adjustment of the envelope detection level

1) Connect CH-1 of the oscilloscope to TP412 (ENV) and CH-2 to TP407 (SWH).
2) Load the level test tape TY-7111, then set the unit to the PLAY mode.
3) Adjust semix-fixed resistor R505 so that the levels of output waveforms A and B are 800 ± 100 mV. At this time, if the difference in output between level A and level B is too great for both of them to be the standard value, match the higher to the standard value.

## 10．エンベロープ検出レベル調整

１）．オシロ・スコープのCH-1をTP412(ENV)に，CH-2をTP407(SWH)にそれぞれ接続する．
２）．レベル用テスト・テープ TY-7111を装着し，ＰＬＡＹモードにする．
３）．図4-7 の様に，出力波形Ａ，Ｂのレベルが 800±100mV になるように半固定抵抗 R505 を調整する．又，このときＡ，Ｂの出力差が大きく規格値に入らない場合は，大きい方のレベルを規格値に合わせること．

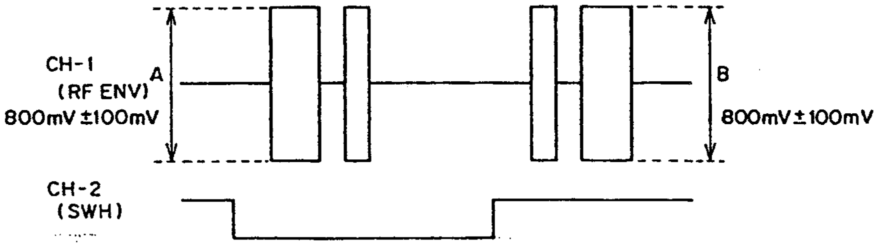


Fig. 4-7

## 11. Adjustment of the PLL free-running frequency

1) Set the unit to the STOP mode. Set the switches and controls to their required settings.
2) Connect TP402 PIN 1 to GND. (Short TP402 using the shorting pin.)
3) Connect the frequency counter between TP401 PIN 1 and GND.
4) Adjust by turning oscillation coil T402 so that the frequency counter reads 8.350 ±0.01 MHz (8.350 ±0.1 MHz during checking).
5) Disconnect the shorting pin from TP402.

## 12. Adjustment of the recording current

**Notes.**

1. To adjust the recording current, both the PCM section and ATF section should be adjusted. Adjust the PCM section first.
2. The blank tape used for recording should be one with an unused portion on which no RF signal has been recorded.

### 12-1. Confirmation of the output level of the PCM section

1) Connect CH-1 of the oscilloscope to TP412 (ENV), and CH-2 to TP407 (SWH).
2) Load the level test tape TY-7111, then set the unit to the PLAY mode.
3) As shown in Photo 4-1, make a note of the signal level voltages of heads A and B at the PCM section (1.57 MHz) of the waveform.

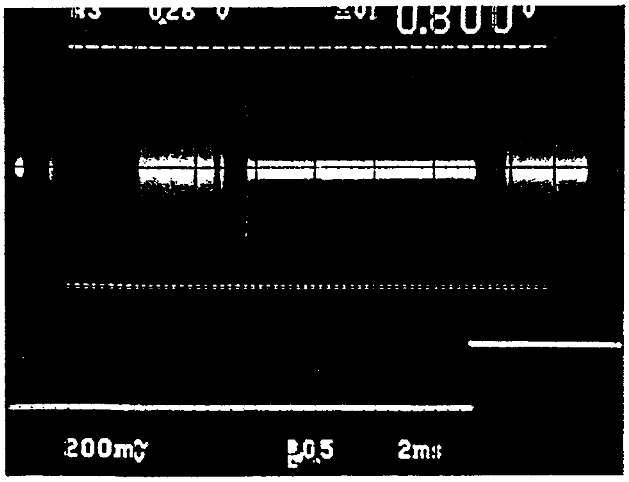


**Photo 4-1**

### 12-2. Confirmation of the recording current of the PCM section

1) Connect CH-1 of the oscilloscope to TP412 (ENV) and CH-2 to TP407 (SWH).
2) Load a blank TY-30B tape for recording and check there is a section which has not been previously recorded before making a non-signal recording.
3) Rewind the recorded portion, then confirm that the playback signal levels of heads A and B of the PCM section (1.57 MHz) are within ±3 dB of the levels noted down in 12-1 above.
(Refer to Photo 4-2.)

## 11. ＰＬＬ自走周波数調整

１）．ＳＴＯＰ状態にする．各ＳＷ，各ＶＲ等は任意です．
２）．TP402 PIN 1 を GNDに落す．（TP402 をショート・ピンによりショートする．）
３）．TP401 PIN 1 と GND間に周波数カウンターを接続する．
４）．周波数カウンターの値が 8.350±0.01MHz になるように，発振コイル T402 を回して調整する．（チェック時は，8.350 ±0.1MHz）
５）．TP402 のショート・ピンを外す．

## 12. 記録電流調整

注意　1．記録電流調整にはＰＣＭ部とＡＴＦ部がありますが，必ずＰＣＭ部の調整を先に行なうこと．
　　　2．記録用ブランク・テープは，ＲＦ信号を記録したことのない未使用の部分を使用すること．

### 12-1. ＰＣＭ部の出力レベルの確認

１）．オシロスコープのCH-1をTP412(ENV)に，CH-2を TP407 (SWH) にそれぞれ接続する．
２）．レベル用テスト・テープ TY-7111装着し，ＰＬＡＹモードにする．
３）．写真4-1 の様に，波形の PCM部(1.57MHz) の信号レベルがＡヘッド，Ｂヘッドそれぞれ何Ｖであるかを記録（メモ）しておく．

### 12-2. ＰＣＭ部の記録電流確認

１）．オシロスコープのCH-1をTP412(ENV)に，CH-2を TP407 (SWH) にそれぞれ接続する．
２）．記録用ブランク・テ－プ TY-30B を装着し，未使用の部分であることを確認した後，無信号録音する．
３）．無信号録音した部分を巻戻し，再生したときのＡヘッド，Ｂヘッドそれぞれの PCM部(1.57MHz) の信号レベルが 12-1 項で記録（メモ）したレベルの±3dB 以内であることを確認する．（写真4-2 参照）

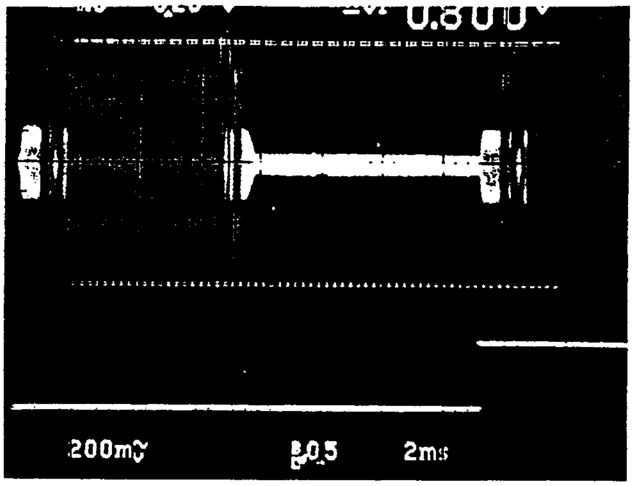

0.800V
200m
0.5
2ms

Photo 4-2

### 12-3. Adjustment of the recording current of the PCM section

If the values do not fall within the standard range even after performing procedure 12-2, adjust the recording current control VR PCM (Fig. 4-8) on the RF unit, then repeat procedure 12-2 until the values are as per 12-2.

### 12-3. ＰＣＭ部の記録電流調整

12-2項で規格に入らない場合は，RFユニット内の記録電流調整用半固定抵抗 PCM (図4-8)を調整後，12-2項を再度確認し規格に入るまで繰り返す.

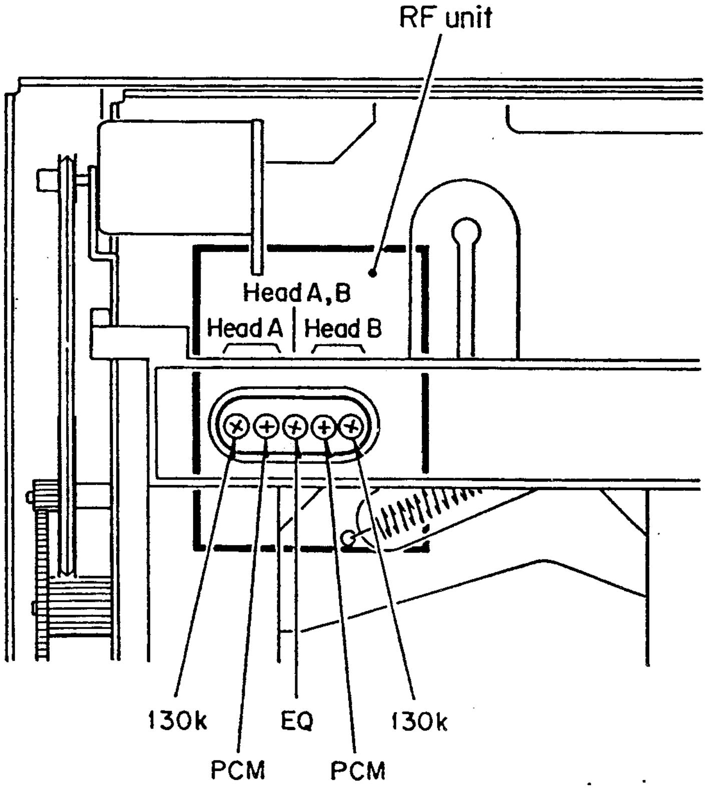

RF unit
Head A,B
Head A
Head B
130k
PCM
EQ
PCM
130k

Fig. 4-8

### 12-4. Confirmation of the output level of the ATF section

1) Connect CH-1 of the oscilloscope to TP413 (PILOT) and CH-2 to TP407 (SWH).
2) Load the level test tape TY-7111, then set the unit to the PLAY mode.
3) As shown in Photo 4-3, make a note of the signal level voltages of heads A and B at the AFT section (130 kHz) of the waveform.

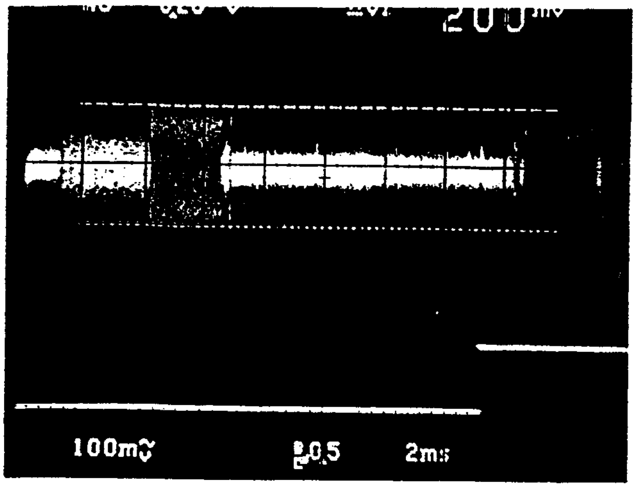


Photo 4-3

### 12-5. Confirmation of the recording current at the ATF section

1) Connect CH-1 of the oscilloscope to TP413 (PILOT) and CH-2 to TP407 (SWH).
2) Load a blank TY-30B tape for recording and confirm there is an unrecorded portion on the tape before making a non-signal recording.
3) Rewind the recorded portion, then confirm that the signal levels of heads A and B of the ATF section (130 kHz) when they are played back are within ±2 dB of the levels noted down in 12-4 above. (Refer to Photo 4-4.)

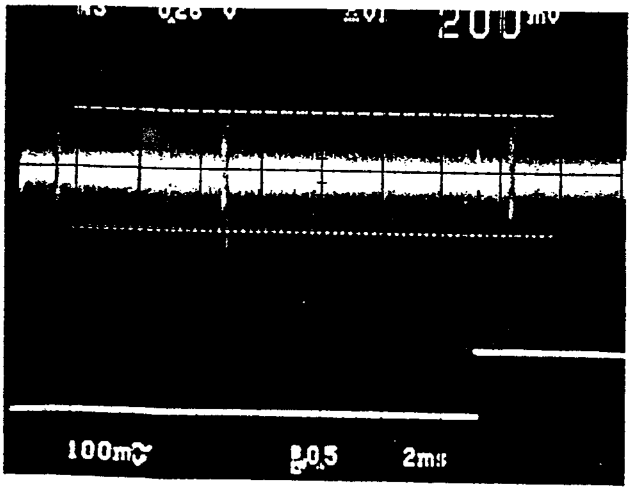


Photo 4-4

### 12-6. Adjustment of the recording current of the ATF section

If the values do not fall within the standard range even when procedure 12-5 has been performed, adjust the recording current control VR130K (Fig. 4-8) on the RF unit, then repeat procedure 12-5 until the values are as per 12-5.

### 12-4. ＡＴＦ部の出力レベルの確認

１）．オシロスコープのCH-1をTP413(PILOT)に，CH-2をTP407)SWH)にそれぞれ接続する．

２）．レベル用テスト・テープ TY-7111を装着し，ＰＬＡＹモードにする．

３）．写真4-3 の様に，波形の ATF部(130KHz)の信号レベルがＡヘッド，Ｂヘッドそれぞれ何Ｖであるかを記録（メモ）しておく．

### 12-5. ＡＴＦ部の記録電流確認

１）．オシロスコープのCH-1をTP413(PILOT)に，CH-2をTP407)SWH)にそれぞれ接続する．

２）．記録用ブランク・テープ TY-30B を装着し，未使用の部分であることを確認した後，無信号録音する．

３）．無信号録音した部分を巻戻し，再生したときのＡヘッド，Ｂヘッドそれぞれの ATF部(130KHz)の信号レベルが 12-4 項で記録（メモ）したレベルの±2dB 以内であることを確認する．（写真4-4 参照）

### 12-6. ＡＴＦ部の記録電流調整

12-5項で規格に入らない場合は，RFユニット内の記録電流調整半用固定抵抗 130K（図4-8)を調整後，12-5項を再度確認し規格に入るまで繰り返す．

## 13. Adjustment of Error Rate

### 13.1 Digital PCB section

1) Connect CH-1 of the oscilloscope to TP404 PIN2 (FLAG) and CH-2 to TP407 (SWH).
2) Load the function test tape TY-7551, then play back PGM No. 13; at this time, as shown in Photo 4-5 ③, turn semi-fixed resistor R429 both ways until there are the least possible error flags.

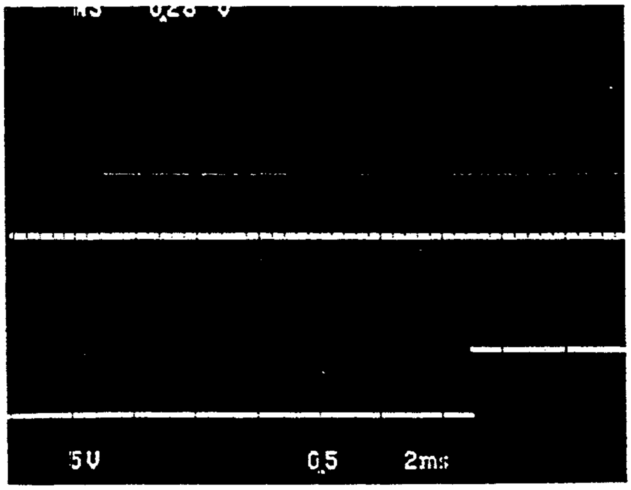
## 13. エラー・レートの調整

### 13-1. デジタルＰＣＢ部

１）. オシロスコープのCH-1をTP404 PIN 2(FLAG) に, CH-2をTP407(SWH)にそれぞれ接続する.

２）. ファンクション用テスト・テープ TY-7551を装着し, PGM NO.13 を再生したとき, 写真4-5③の様にエラー・フラグが最少になる位置に半固定抵抗 R429 を左右両方向に回してみて調整する.

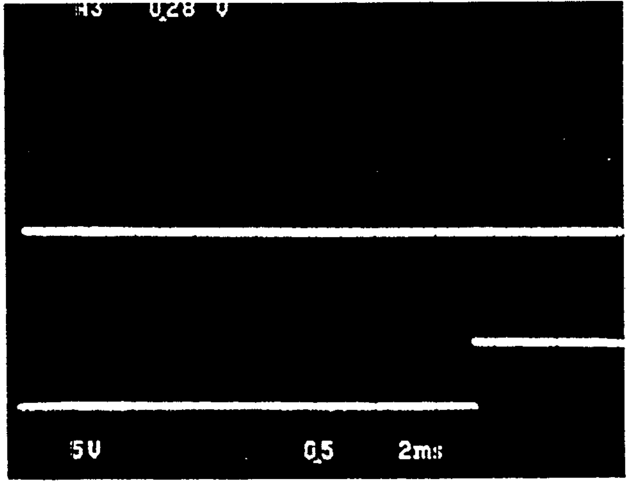
①



Error rate ($10^{0}$ to $10^{-1}$)
No sound.

エラーレート($10^{0}$〜$10^{-1}$)
音を出ず.

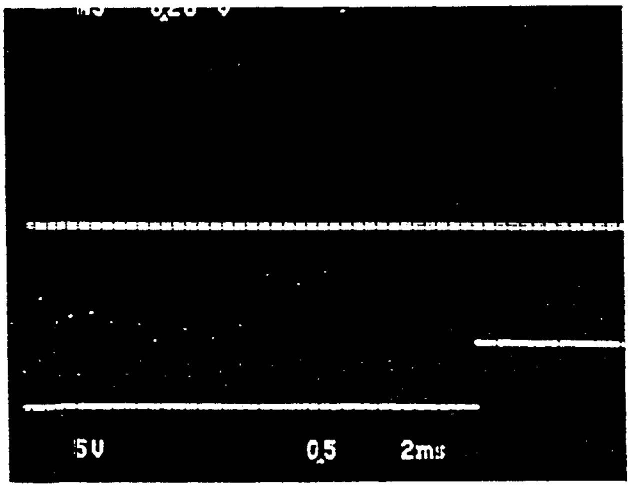
②



Error rate ($10^{-2}$ to $10^{-3}$)
Flickering error flag.

エラーレート ($10^{-2}$〜$10^{-3}$)
エアーフラグが, かなりの頻度でちらつく.

③



Error rate ($10^{-3}$ to $10^{-4}$)
Virtually no error flag appears.

エラーレート($10^{-3}$〜$10^{-4}$)
エアーフラグが, ほとんど発生しない.

Photo 4-5

### 13-2. Adjustment of the EQ at the RF unit

1) Connect CH-1 of the oscilloscope to TP404 PIN 2 (FLAG), and CH-2 to TP407 (SWH).

2) Load the function test tape TY-7551, then play back PGM No. 13; at this time, as shown in Photo 4-5 3 , turn control EQ (Fig. 4-8) on the RF unit both ways until there are the least possible error flags.

### 13-3. Confirmation of the error rate

1) Connect the connectors of the error rate counter to TP403 (POWER) and TP403 (FLAG).

2) Perform non-signal recording on an unrecorded portion of the blank tape for recording (TY-30B), then play it back. At this time, confirm that the error rate is $6 \times 10^{-3}$ or less.

### 13-2. RFユニット部のEQ調整

1）．オシロスコープのCH-1をTP404 PIN 2(FLAG) に，CH-2をTP407(SWH)にそれぞれ接続する．

2）．ファンクション用テスト・テープ TY-7551を装着し，PGM NO.13 を再生したとき，写真4-5 3 の様にエラー・フラグが最少になる位置に RF ユニット内のEQ調整用半固定抵抗 EQ （図4-8 ）を左右両方向に回してみて調整する．

### 13-3. エラーレート確認

1）．エラーレート・カウンターのコネクターをTP403(電源）とTP403(FLAG) にそれぞれ接続する．

2）．記録用ブランク・テープ TY-30B の未記録部分を無信号録音し，巻戻して再生したときのエラーレートが，$6X10^{-3}$以下であることを確認する．

## 4-2. Adjustment of the audio system

***PCB to be adjusted: AUDIO PCB (Fig. 4-9)**

## 4－2．オーディオ系調整

**＊調整ＰＣＢ　：　ＡＵＤＩＯ　ＰＣＢ（図４－９）**

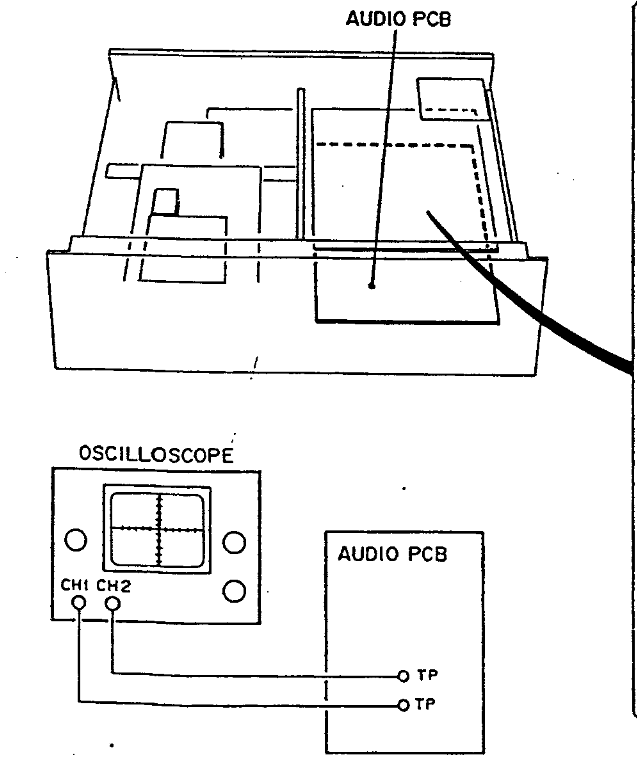


Fig. 4-10 Connection of test points for measurement
各端子の測定

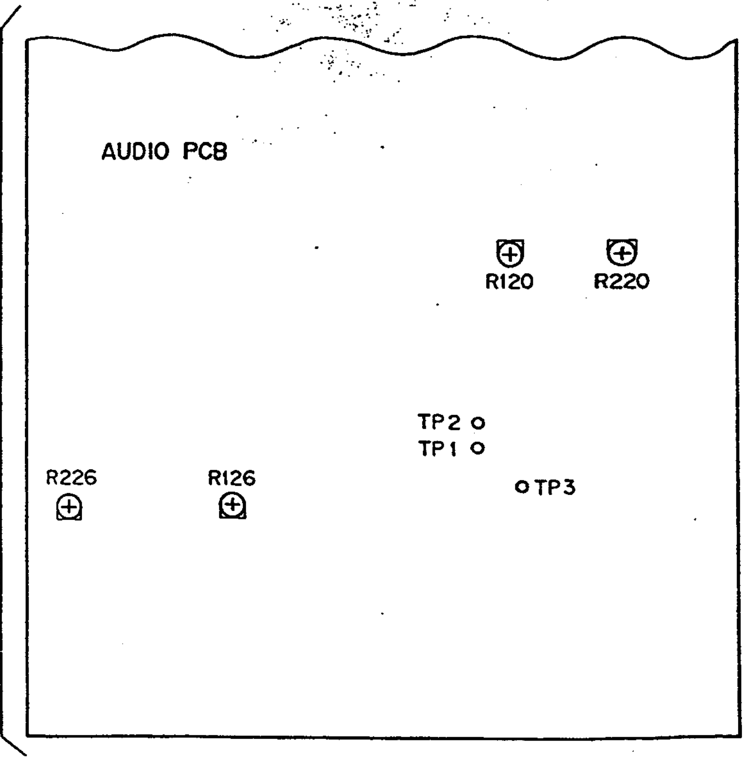


Fig. 4-9 Adjustment of the audio system and test point locations
オーディオ系調整とテスト・ポイント位置

1. **Adjustment of the A/D OFFSET**

1) Connect CH-1 of the oscilloscope to TP-3 (ADDT) and CH-2 to TP-1 (LRCK).
2) Short the LINE IN terminals of the set.
3) Set the UNBAL-BAL switch to the UNBAL position, then set all controls on the front panel to the minimum position.
4) Load the blank tape TY-30B or equivalent, then set the unit to the REC/PAUSE mode. At this time, adjust semi-fixed resistors R120 (L-channel) and R220 (R-channel) for adjusting A/D OFFSET so that the waveform at TP-3 (ADDT) is as shown in Photo 4-6 (Fig. 4-11 ④).

1. A/D　OFFSET調整

1). オシロスコープのCH-1をTP-3(ADDT)に, CH-2をTP-1(LRCK)にそれぞれ接続する.
2). セットの LINE IN端子をショートする.
3). UNBAL-BAL スイッチをUNBAL にセットし, フロント・パネル上の全てのボリュームを最小にセットする.
4). TY-30B相当のブランク・テープを装着し, REC/PAUSE状態にしたときの TP-3(ADDT) の波形が, 写真4-6 (図4-11④) の様になるように A/D OFFSET 調整用の半固定抵抗 R120(L-CH), R220(R-CH)を調整する.

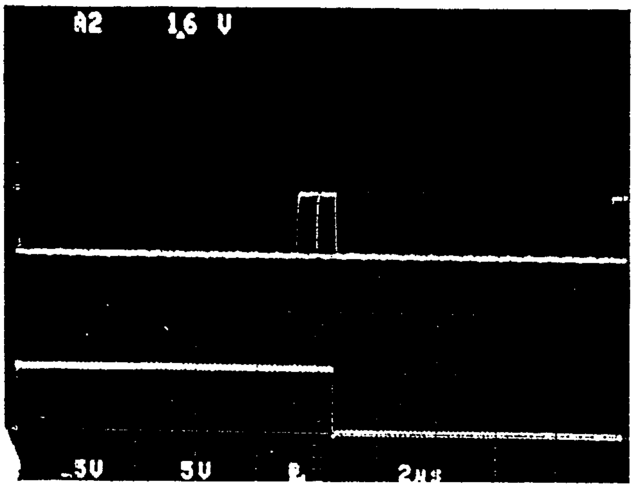


**Photo 4-6**

**In the photo, only the lower 2 bits are high.**
**写真では、下位2bitのみビットが立っている。**

Note: Since offset will deviate with a single adjustment, stop the unit, then set it to the REC/PAUSE mode and repeat adjustment two or three times.

注. 一度の調整では OFFSET はずれるので, STOPして再び REC/PAUSE状態にして調整するということを2~3度繰り返して下さい.

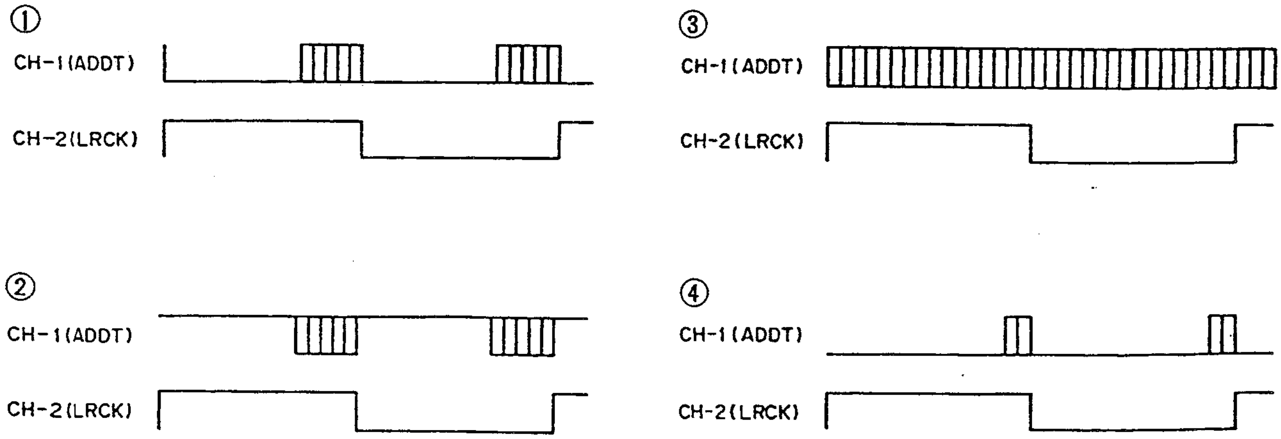
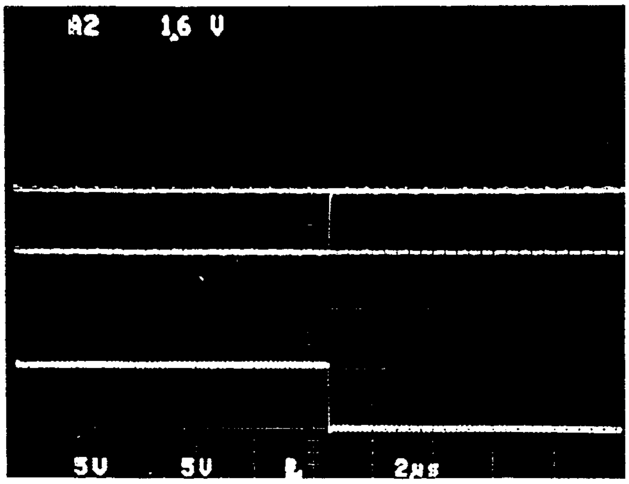


Fig. 4-11

* If adjusted to +DC, the upper bits will be "L" only (Fig. 4-11 ① ). Conversely, if adjusted to –DC, the upper bits will be "H" only (Fig. 4-11 ② ). If adjusted exactly at 0 V, the probability of the occurrence of "L" and "H" will be equal, and the uppermost bit (most significant bit) will continuously alternate between "L" and "H" (Photo 4-7, Fig. 4-11 ③ ) with the result that the S/N will deteriorate and the S/N value will fluctuate. Therefore, adjust to a point where upper bits will always be "L" and the lower bits stand out least (Photo 4-6, Fig. 4-11 ④ ).

※+DC 側に調整されると，上位ビットが“L”のみになり（図4-11①），逆に -DC側に調整されると，上位ビットが“H”のみになる（図4-11②）．０Ｖにジャスト調整すると“L”と“H”が発生する確立が等しく，最上位ビット(MSB) は“L”と“H”が常に反転し（写真4-7，図4-11③），S/N が悪化すると共に S/N値もふらつく．従って，上位ビットが完全に“L”に変化し，しかもビットが最も立たないポイントに調整する（写真4-6，図4-11④）．



Upper bits are inverted at all times.
ADDT
LRCK

上位ビットが常に反転している．

Photo 4-7

**2. Confirmation of the LINE minimum input level**

1) Load a blank TY-30B tape then set the INPUT LEVEL control to the maximum position and set the unit to the REC monitor mode (press only the REC button).
2) Input the 1 kHz signal from the LINE INPUT, then adjust the input level to a level at which the "OVER" point of the level meter hardly ever lights using the attenuator. The LINE input level at this time should be within -6 ±1 dBV, and the difference between channels should be within 1 dB.

**3. Setting the LINE input level (reference recording input/output)**

1) Load a blank TY-30B tape then input a 1 kHz +6 dBV signal to the LINE INPUT, and set the unit to the REC monitor mode (press only the REC button).
2) Turn the INPUT LEVEL control, and set it so that the level meter indication hardly ever reaches the OVER point. The output level at this time should be 2.0 ± 0.5V.

２．ＬＩＮＥ最少入力レベルの確認

１）．ブランク・テープ TY-30B を装着し，INPUT LEVEL ボリュームを最大とし RECモニター状態（REC ボタンのみを押す）にする．

２）．LINE INPUTより 1KHz の信号を入力し，アッテネーターにより入力レベルをレベル・メーターの『OVER』点灯直前の入力レベルに調整する．このときの LINE 入力レベルは -6 ±1dBVであること．又，チャネル差は 1dB 以内であること．

３．ＬＩＮＥ入力レベルセット（録音基準入出力）

１）．ブランク・テープ TY-30B を装着し，LINE INPUTより 1KHz.+6dBVの信号を入力して RECモニター状態（REC ボタンのみを押す）にする．

２）．INPUT LEVEL ボリュームを回し，レベル・メーターが『OVER』点灯直前になるようにセットする．このときの出力レベルは 2.0±0.5Vであること．

### 4. Adjustment of the D/A MSB

In the reference recording input/output state, set the input frequency to 1 kHz, then set the unit to the REC monitor mode (press only the REC button). So that the distortion factor at this time will be minimum, adjust semi-fixed resistors R126 (L-CH) and R226 (R-CH) for adjustment of the MSB. (The 22 kHz LPF, 400 Hz HPF and 30 kHz LPF should be IN and the sampling frequency should be 48 kHz.)

### 5. Playback output voltage (reference playback output)

Load the test tape TY-7551, then play back PGM No. "1" (1 kHz, 0 dB). At this time, the LINE OUTPUT voltage should be 2.0 ± 0.5 V. The difference between channels at this time should be within 1 dB.

### 6. Playback distortion factor

Load the test tape TY-7551, then play back PGM No. "1" (1 kHz, 0 dB). At this time, the distortion factor should be 0.007% or less.

### 7. Playback frequency characteristics

With the unit in the state described in 5, the playback frequency characteristics should be 0 ± 0.5 dB with respect to the reference playback output when PGM No. "2" (20 Hz), No. "3" (100 Hz), No. "4" (10 Hz) and No. "5" (20 kHz) are played back.

### 8. Playback channel separation

With the unit in the state described in 5, the channel separation should be 90 dB or more at 1 kHz and 86 dB or more at 10 kHz with respect to the reference playback output when PGM No. "7" (1 kHz L), No. "8" (10 kHz L), No. "9" (1 kHz R) and No. "10" (10 kHz R) are played back on the other channel. (At this time, the 22 kHz LPF and the IEC-A filter should be IN.)

### 9. Playback S/N ratio

Load the test tape TY-7551, then play back PGM No. "6" (non-signal). At this time, the S/N ratio should be 94 dB or more. (The 22 kHz LPF and IEC-A filter should be IN.)

### ４．D／A　ＭＳＢ調整

録音基準入出力状態に於いて，入力周波数を 1KHz にし REC モニター状態（REC ボタンのみを押す）にする．このときの歪率が最少になるように，MSB 調整用の半固定抵抗 R126(L-CH) ，R226(R-CH)を調整する．（但し，フィルターは 22KHz LPF ，400Hz HPF ，30KHz LPF ：IN，サンプリング周波数は 48KHz ）

### ５．再生出力電圧（再生基準出力）

テスト・テープ TY-7551を装着し，PGM NO. 『１』(1KHz.0dB)を再生したときの LINE OUTPUTの出力電圧は 2.0±0.5Vであること．又，チャネル差は 1dB以内であること．

### ６．再生歪率

テスト・テープ TY-7551を装着し，PGM NO. 『１』(1KHz.0dB)を再生したときの歪率は 0.007% 以下であること．

### ７．再生周波数特性

５項の状態のとき，再生基準出力に対して PGM NO.『２』(20Hz)，『３』(100Hz) ，『４』(10Hz)，『５』(20KHz) を再生したときの再生周波数特性は 0±0.5dB であること．

### ８．再生チャネル・セパレーション

５項の状態のとき，再生基準出力に対して PGM.NO.『７』(1KHz L)->R ，『８』(10KHz L)->R，『９』(1KHz R)->L ，『10』(10KHz R)->Lを再生したときのチャネル・セパレーションは 1KHz で90dB以上，10KHz で86dB以上であること．
（但し，フィルターは 22KHz LPF，IEC-A ：IN)

### ９．再生Ｓ／Ｎ

テスト・テープ TY-7551を装着し，PGM NO. 『６』( 無信号) を再生したときの S/N値は 94dB 以上であること．
（但し，フィルターは 22KHz LPF，IEC-A ：IN）

### 10. Checking the level meter

1) With the unit in the state described in 3, confirm that the "0 dB" of the level meter lights and the margin indication is 0 dB.
2) Next, when the input level is lowered by 1 dB from this state, the "−1 dB" of the level meter should light. When the margin reset button is pressed in this state, the margin indication should be 1 dB.
3) When the level is raised by 2 dB from the state in 2), the "OVER" should light in the level meter.

### 11. Headphone output

With the unit in the state described in 3, when the headphone volume control is turned to the maximum position, the headphone output should be 0.9 Vrms (100 mW) or more. (The load impedance at this time should be 8 ohm.)

### 12. Recording S/N ratio

1) Load a blank TY-30B tape then set the unit to the REC monitor mode (press only the REC button).
2) When there is no input to the LINE INPUT, the S/N value should be 85 dB or more (Fs: 48 kHz and 44.1 kHz) with respect to the reference recording output in 3. (The 22 kHz LPF and IEC-A filter should be IN.)

### 13. Distortion factor

With the unit in the state described in 3, the distortion factor should be 0.01% or less. The distortion factor at 10 kHz should be 0.01% or less. (The 22 kHz LPF, 400 Hz HPF and 30 kHz LPF should be IN.)

### 14. Recording frequency characteristics

With the unit in the state described in 3, when an input signal of 20 Hz to 22 kHz is applied, the recording frequency characteristics with respect to the 1 kHz output should be 0 ± 0.8 dB.

### 10. レベル・メーターの確認

1）．3項の状態のとき，レベル・メーターの『0dB 』が点灯し，マージン表示が 0dBであることを確認する．
2）．次に，その状態から入力レベルを 1dB下げたとき，レベル・メーターの『-1dB』が点灯すること．この状態でマージン・リセット・ボタンを押したとき，マージン表示が 1dBになること．
3）．2）の状態から 2dB上げたとき，レベル・メーターの『OVER』が点灯すること．

### 11. ヘッドホーン出力

3項の状態で，ヘッドホーン・ボリュームを最大に回したとき，ヘッドホーン出力が 0.9Vrms(100mW) 以上あること．
（但し，負荷インピーダンスは 8Ω）

### 12. 録音S／N

1）．ブランク・テープ TY-30B を装着し，REC モニター状態(RECボタンのみを押す) にする．
2）．LINE INPUTに入力無しの状態で，3項の録音基準出力に対して S/N値は 85dB 以上(Fs:48KHz.44.1KHz とも) であること．
（但し，フィルターは 22KHz LPF，IEC-A : IN)

### 13. 録音歪率

3項の状態のとき，歪率は 0.01%以下であること．又，10KHz の歪率は 0.010% 以下であること．
（但し，フィルターは 22KHz LPF，400Hz HPF ，30KHz LPF : IN)

### 14. 録音周波数特性

3項の状態で，入力信号 20Hz ～22KHz を加えたとき，1KHz の出力に対しての録音周波数特性は 0±0.8dB であること．

### 15. Recording channel separation

With the unit in the state described in 3, the ratio in output between when the 1 kHz signal is input to a single channel and the output of the other channel should be 85 dB or more. In the same way, when the 10 kHz signal is input, the radio should be 80 dB or more. (At this time, the 22 kHz LPF and IEC-A filter should be IN and the input terminals of the channel to be measured should be shorted.)

### 16. Recording dynamic range

With the unit in the state described in 3, record the input signal with the level lowered by 60 dB, then play it back. At this time, the ratio between the distortion level and the reference recording level should be 84 dB or more. (At this time, the 22 kHz LPF and IEC-A filter should be IN and the 60 dB amplifier should be used.)

### 15．録音チャネル・セパレーション

３項の状態で，入力信号を 1KHz 片チャンネルに加えたときの出力に対して，もう片チャンネルの出力との比は 85dB 以上であること．同様に 10KHzのときは 80dB 以上であること．（但し，フィルターは 22KHz LPF，IEC-A ：IN，測定側 CH の入力端子はショートすること）

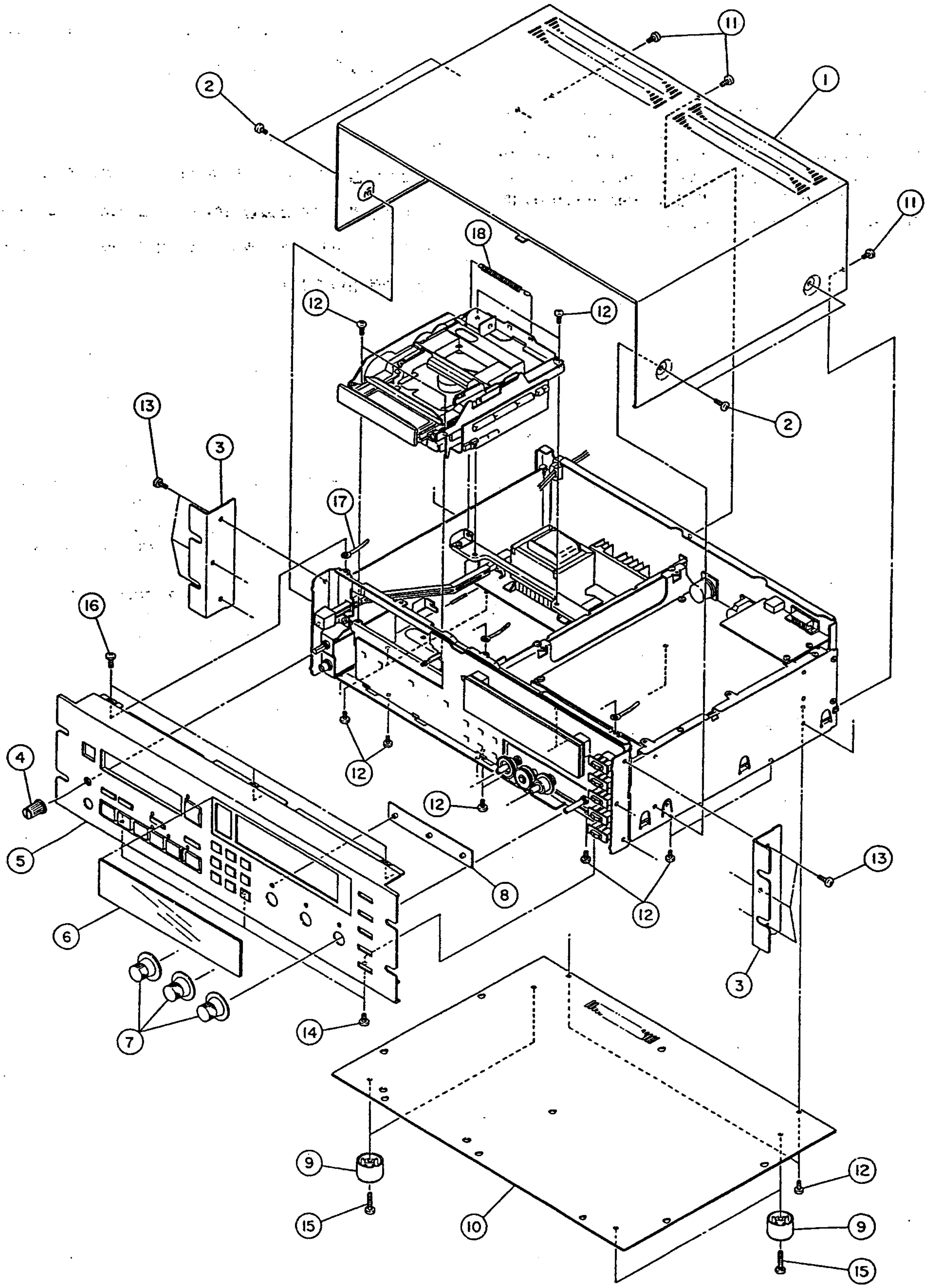
### 16．録音ダイナミック・レンジ

３項の状態から，入力信号を 60dB 下げて録音し，再生したときの歪率レベルと録音基準レベルとの比は 84dB 以上であること．（但し，フィルターは 22KHz LPF，IEC-A ：IN，60 dB AMP使用のこと）

# 5. EXPLODED VIEWS AND PARTS LISTS

分解図と部品表

## EXPLODED VIEW-1



1
2
2
3
3
4
5
6
7
8
9
9
10
11
11
12
12
12
12
12
12
12
13
13
14
15
15
16
17
18

## EXPLODED VIEW-1

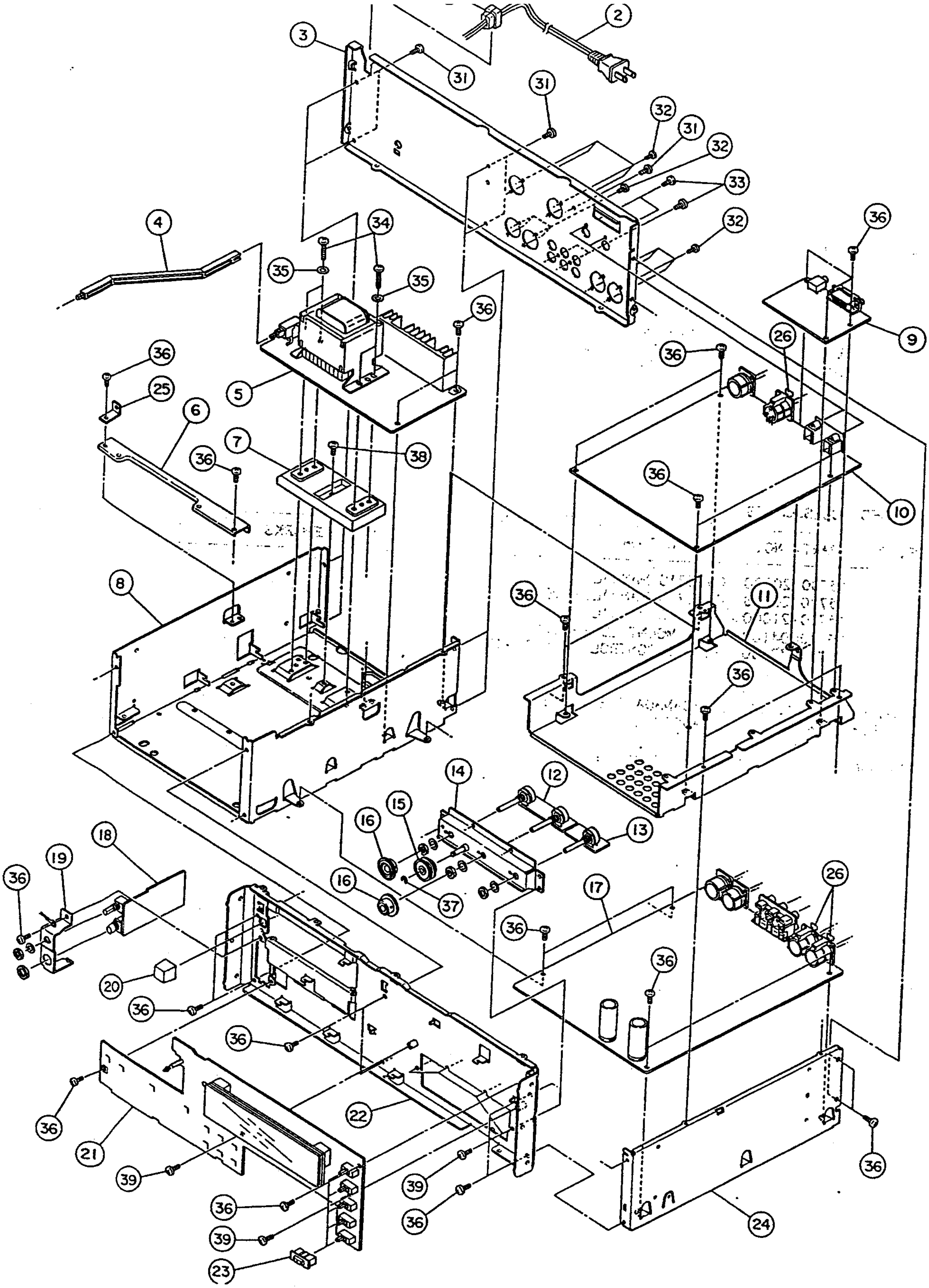
| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 1- 1 | *5801350900 | BONNET(B) | |
| 1- 2 | *5800612400 | SCREW,M3X8(BLK) | |
| 1- 3 | *5801348700 | ANGLE | |
| 1- 4 | 5800961600 | KNOB ASSY,VR 1A | |
| 1- 5 | *5801347201 | FRONT PANEL ASSY | |
| 1- 6 | *5801348600 | WINDOW,FL | |
| 1- 7 | 5801349300 | KNOB | |
| 1- 8 | *5801348300 | MARKER ASSY | |
| 1- 9 | 5504676000 | FOOT,19L | |
| 1-10 | *5801342500 | PLATE,BOTTOM | |
| 1-11 | *5783613008 | SCREW,BIND C-TITE M3X8(BLK NI) | |
| 1-12 | *5783033006 | SCREW,BIND S-TITE M3X6 | |
| 1-13 | *5783694008 | SCREW,BIND M4X8(BLK NI) | |
| 1-14 | *5783693006 | SCREW,BIND S-TITE M3X6(BLK NI) | |
| 1-15 | *5783034020 | SCREW,BIND S-TITE M4X20 | |
| 1-16 | *5786713008 | SCREW,BIND S-TITE M3X8(BLK NI) | |
| 1-17 | *5786713000 | CLIP,HARNESS 3X8 | |
| 1-18 | *5801396801 | SPRING,TRAY | |

## INCLUDED ACCESSORIES

| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| | *5700120800 | OWNER'S MANUAL[J] | |
| | *5700120900 | OWNER'S MANUAL[EXCEPT J] | |
| | *5700121000 | OWNER'S MANUAL[C,E] | |
| | *5740004100 | RACK MOUNT SCREW KIT | |
| | *5744077400 | REMOTE CONTROL UNIT,RC-30D | |

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.



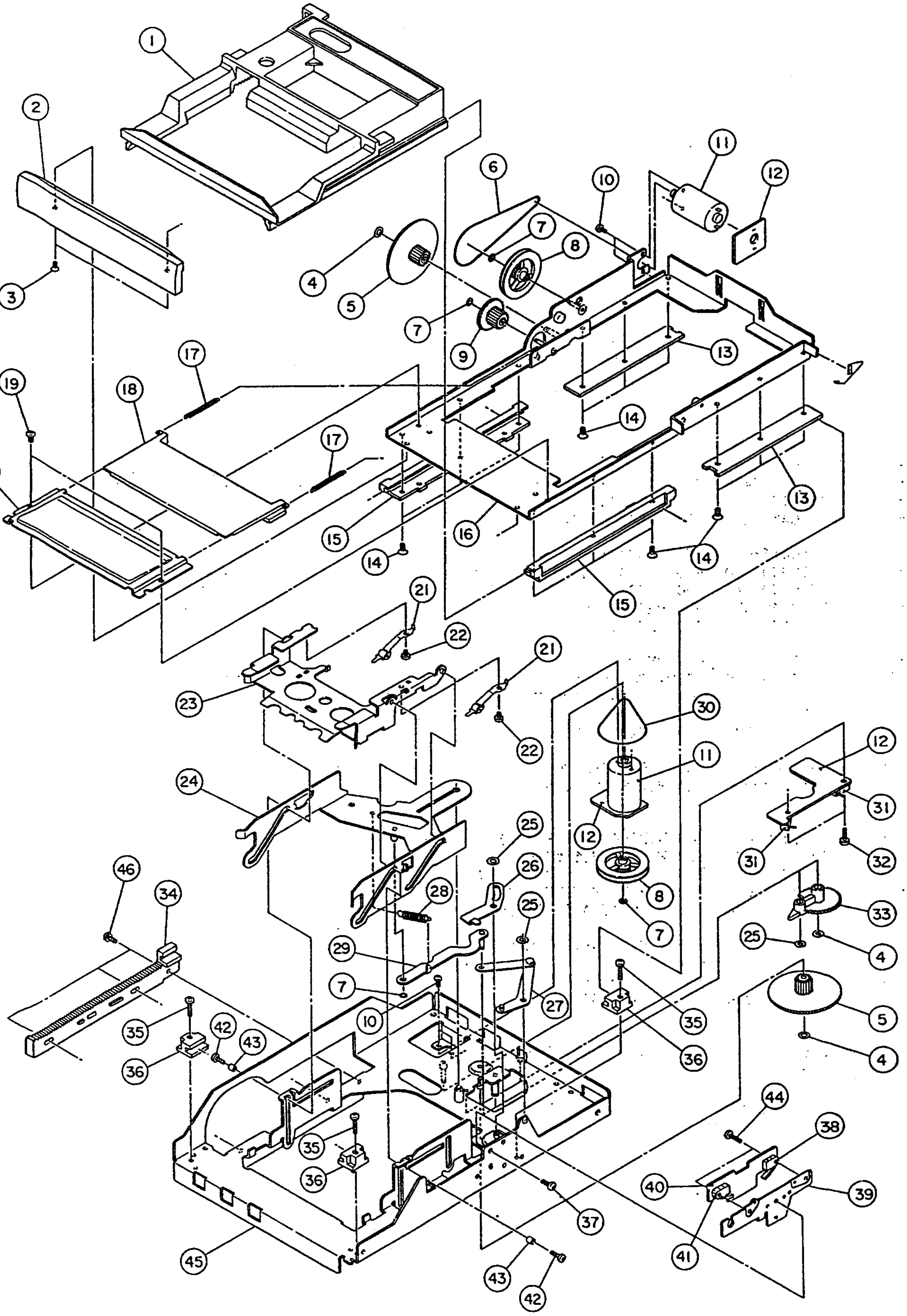
EXPLODED VIEW-2

| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 2- 1 | ⚠*5317003400 | BUSHING,2271 | |
| 2- 2 | ⚠*5350015600 | CODE,AC [J] | |
| | ⚠*5350010700 | CORD,AC [US,C,GE] | |
| | ⚠*5350011700 | CORD,AC [E] | |
| | ⚠*5128047000 | CORD,AC [UK] | |
| | ⚠*5350008300 | CORD,AC [A] | |
| 2- 3 | *5801347900 | PANEL,REAR | |
| 2- 4 | *5801349400 | ROD,JOINT | |
| 2- 5 | *5200304000 | POWER SUPPLY PCB ASSY [J] | Refer to pages 49 & 52 |
| | *5200304010 | POWER SUPPLY PCB ASSY [US] | Refer to pages 49 & 52 |
| | *5200304020 | POWER SUPPLY PCB ASSY [C] | Refer to pages 49 & 52 |
| | *5200304030 | POWER SUPPLY PCB ASSY [GE] | Refer to pages 49 & 52 |
| | *5200304040 | POWER SUPPLY PCB ASSY [E] | Refer to pages 49 & 52 |
| | *5200304050 | POWER SUPPLY PCB ASSY [UK] | Refer to pages 49 & 52 |
| | *5200304060 | POWER SUPPLY PCB ASSY [A] | Refer to pages 49 & 52 |
| 2- 6 | *5801348900 | BRACKET,MECHA. | |
| 2- 7 | *5801349500 | HOLDER,TRANS. | |
| 2- 8 | *5801343001 | CHASSIS,MAIN | |
| 2- 9 | *5200303800 | CONTROL PCB ASSY | Refer to pages 48 & 51 |
| 2-10 | *5200304100 | DIGITAL PCB ASSY | Refer to pages 46 & 50 |
| 2-11 | *5801347800 | SHIELD | |
| 2-12 | *5200303500 | REC-VR PCB ASSY | Refer to pages 48 & 51 |
| 2-13 | *5200303400 | OUTPUT-VR PCB ASSY | Refer to pages 48 & 51 |
| 2-14 | *5801348000 | BRACKET ASSY,VR | |
| 2-15 | 5504569200 | GEAR ASSY,FRICTION | |
| 2-16 | 5504568000 | GEAR ASSY,A | |
| 2-17 | *5200303200 | AUDIO PCB ASSY [J,US,C,GE] | Refer to pages 47 & 50 |
| | *5200303210 | AUDIO PCB ASSY [E,UK,A] | Refer to pages 47 & 50 |
| 2-18 | *5200303300 | HEADPHONES PCB ASSY | Refer to pages 48 & 51 |
| 2-19 | *5801347400 | BRACKET,H.P | |
| 2-20 | 5801349700 | BUTTON,POWER | |
| 2-21 | *5200303700 | FRONT PCB ASSY | Refer to pages 48 & 51 |
| 2-22 | *5801387300 | CHASSIS ASSY,FRONT | |
| 2-23 | 5801348800 | KNOB,SLIDE | |
| 2-24 | *5801349200 | CHASSIS(B),SIDE | |
| 2-25 | *5801421600 | HOOK,TRAY SPRING | |
| 2-26 | *5334073000 | CLAMP,XLR CONN. SOCKET | |
| 2-31 | *5783693006 | SCREW,BIND S-TITE M3X6(BLK NI) | |
| 2-32 | *5780122605 | SCREW,PAN M2.6X5(BLK NI) | |
| 2-33 | *5783543008 | SCREW,BIND.PT M3X8(BLK NI) | |
| 2-34 | *5783034022 | SCREW,BIND S-TITE M4X22 | |
| 2-35 | *5785012400 | WASHER,FLAT 4.5X10X0.8T | |
| 2-36 | *5783033006 | SCREW,BIND S-TITE M3X6 | |
| 2-37 | *5786003000 | E-RING,E-3 | |
| 2-38 | *5783033008 | SCREW,BIND S-TITE M3X8 | |
| 2-39 | *5780003006 | SCREW,BIND M3X6 | |

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

# EXPLODED VIEW-3

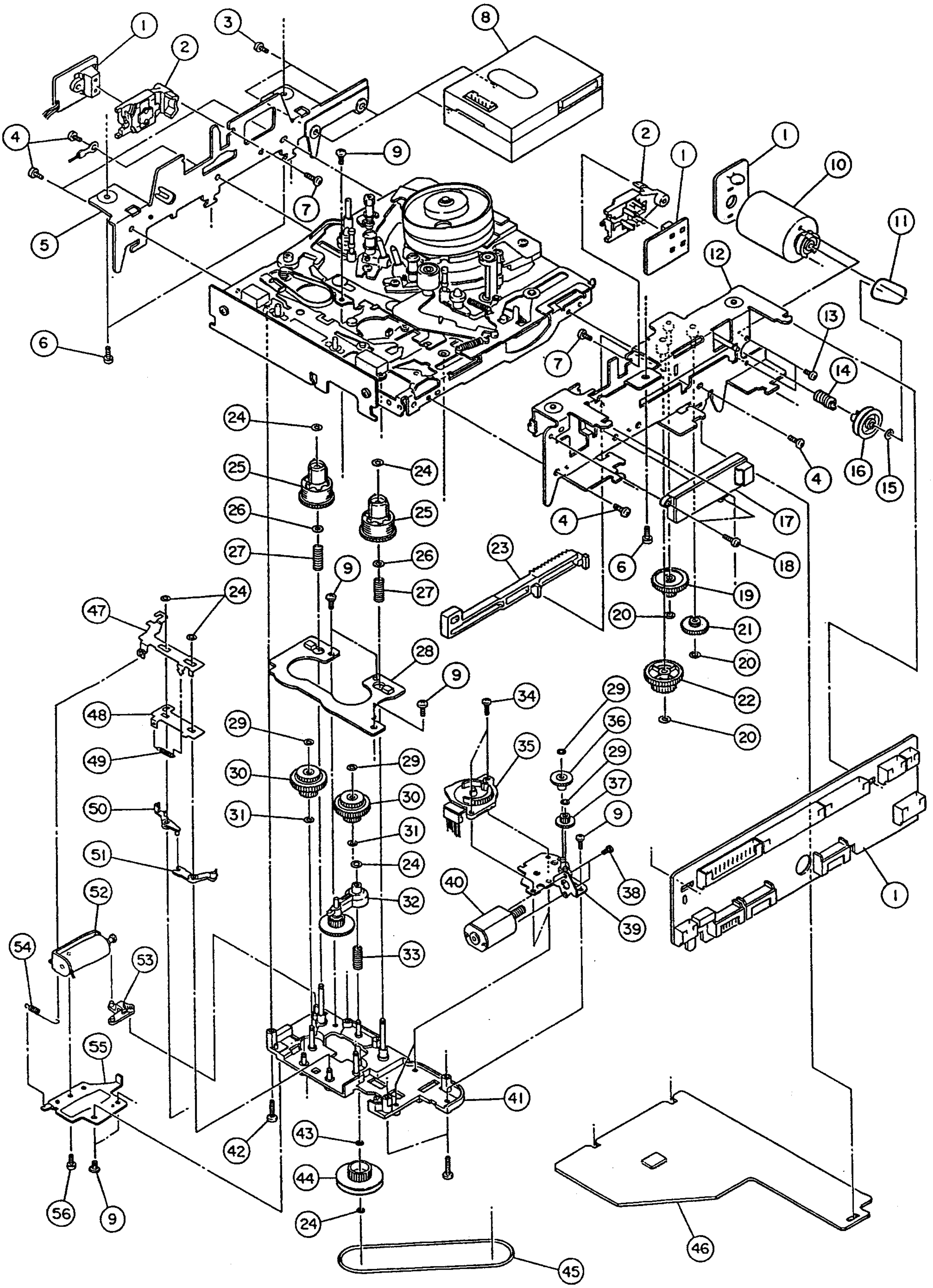

1
2
3
4
5
6
7
8
9
10
11
12
7
13
14
17
18
19
20
17
15
16
14
13
14
15
21
22
21
23
22
30
11
24
12
12
31
31
32
25
26
8
7
28
25
33
46
34
29
25
4
7
10
27
35
5
35
42
43
36
36
4
36
44
35
38
36
40
39
37
41
45
43
42

EXPLODED VIEW-3

| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 3- 1 | *5761819200 | HOLDER,CASSETTE SD162-11 | |
| 3- 2 | *5801349100 | TRAY | |
| 3- 3 | *5780222004 | SCREW,FLAT M2X4(BLK NI)) | |
| 3- 4 | *5761817100 | WASHER,3.5X0.25 FJ123-22 | |
| 3- 5 | 5761816800 | GEAR,DRIVE SD168-11 | |
| 3- 6 | 5761818900 | BELT,DRIVE SF117-11 | |
| 3- 7 | *5761688400 | WASHER | |
| 3- 8 | 5761816700 | PULLEY,GEAR SD170-11 | |
| 3- 9 | 5761819000 | GEAR,TIMING SD169-11 | |
| 3-10 | *5761815200 | SCREW,PAN 2.0X2.0 NI FG121-16 | |
| 3-11 | 5761816600 | MTR BLK,S525-013 | |
| 3-12 | *5761817400 | RELAY PCB,S237-022 | |
| 3-13 | *5761818200 | SPACER,REAR SD166-11 | |
| 3-14 | *5761818100 | SCREW;FLAT 2.0X3 ZN FG138-19 | |
| 3-15 | *5761818300 | SPACER,FRONT SD165-11 | |
| 3-16 | *5761818400 | RIV BASE TR ASSY,SC212-11 | |
| 3-17 | *5761818500 | SPRING,SK141-11 | |
| 3-18 | *5761818600 | SLIDER,SD163-11 | |
| 3-19 | *5761818800 | SCREW,PAN 2.0X2.5 NB UG19V-11 | |
| 3-20 | *5761818700 | COVER,SLIDER SC220-11 | |
| 3-21 | *5761815500 | SPRING ASSY,CASSETTE SC221-11 | |
| 3-22 | *5761815600 | SCREW,PAN 2.0X3 ZN FG177-24 | |
| 3-23 | *5761815400 | HOLDER,CASSETTE SC209-12 | |
| 3-24 | *5761815700 | RIV ARM ASSY,CASSETTE SC214-11 | |
| 3-25 | *5761816000 | WASHER,2.6X0.25 FJ123-21 | |
| 3-26 | *5761816200 | STOPPER,CAM SC217-11 | |
| 3-27 | *5761816100 | RIV LIVER ASSY,SC215-11 | |
| 3-28 | *5761815800 | SPRING,SK142-11 | |
| 3-29 | *5761815900 | RIV LINK SL ASSY,SC216-11 | |
| 3-30 | 5761817000 | BELT,DRIVE SF118-11 | |
| 3-31 | *5761817300 | SPPB11,UE15S-14 | |
| 3-32 | *5761817200 | SCREW,PAN 2.0X8 ZN FG114-22 | |
| 3-33 | 5761816900 | GEAR,CRANK SD172-11 | |
| 3-34 | 5761819400 | GEAR,PACK SD167-11 | |
| 3-35 | *5761819300 | SCREW,PAN 2.6X10 ZN UG19W-11 | |
| 3-36 | *5761819100 | BUSHING,TRAY SD164-11 | |
| 3-37 | *5761817500 | SCREW,PAN 2.0X5 ZN FG114-23 | |
| 3-38 | *5761817800 | SPPB22,UE18N-11 | |
| 3-39 | *5761817600 | HOLDER,SW SC233-11 | |
| 3-40 | *5761817900 | RELAY PCB,S237-023 | |
| 3-41 | *5761817700 | SPPB21,UE18P-11 | |
| 3-42 | *5761816500 | SCREW,PAN 2.0X4 NI FG121-13 | |
| 3-43 | *5761816400 | CALLAR,SL243-12 | |
| 3-44 | *5761818000 | SCREW,PAN 2.0X6 NI FG140-29 | |
| 3-45 | *5761816300 | RIV CHASSIS ASSY,SC213-11 | |
| 3-46 | *5761791800 | SCREW,PAN 2.6X5,FG114-14 | |

Parts marked with *require longer delivery time.

# EXPLODED VIEW-4



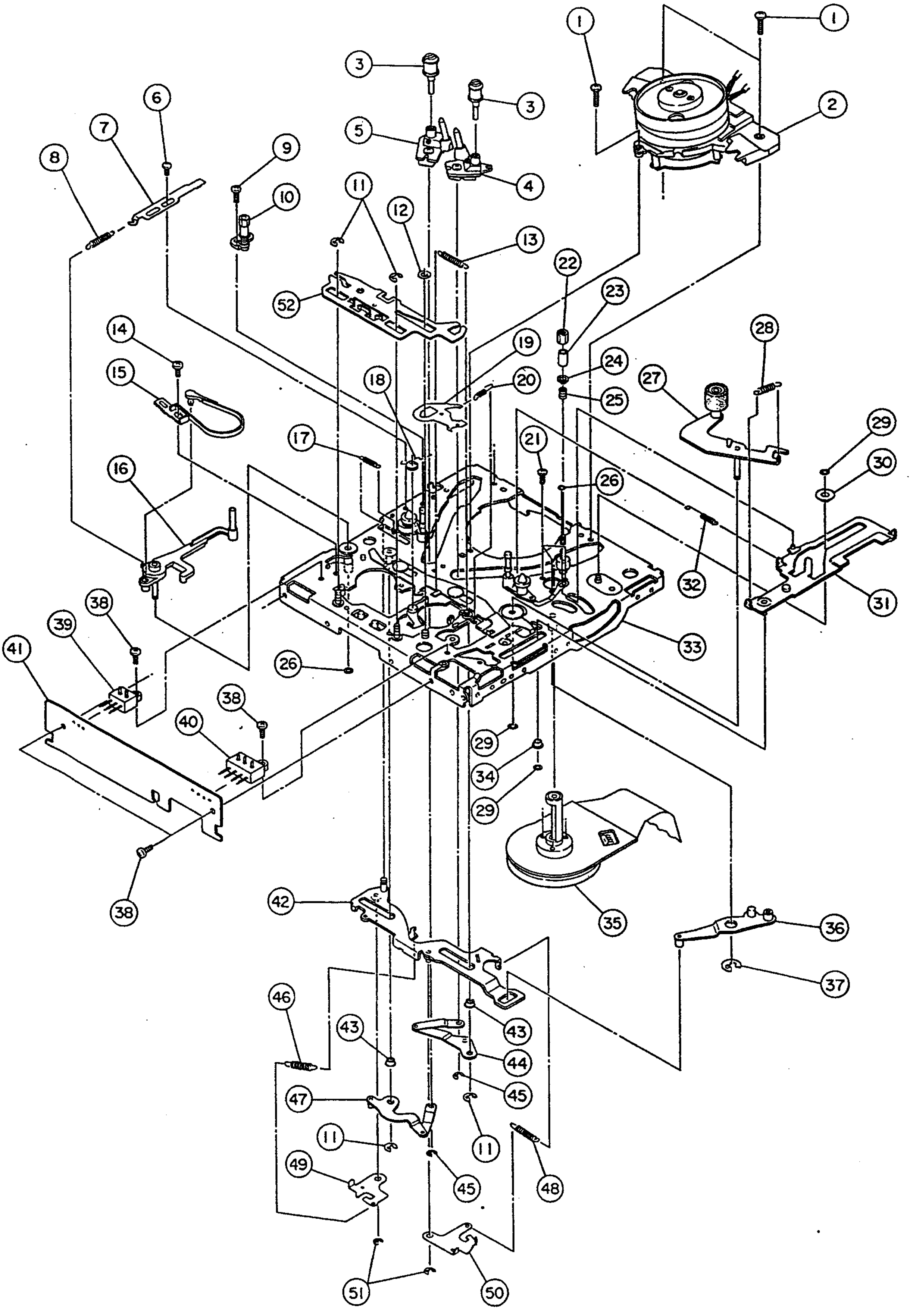
①
③
⑧
②
④
⑨
⑦
⑤
②
①
①
⑩
⑪
⑫
⑥
⑦
⑬
⑭
㉔
④
⑯
⑮
㉕
㉔
㉖
㉕
⑰
④
⑱
㉓
⑥
㉗
⑨
㉖
㉗
㉔
⑲
㊼
⑳
㉑
⑳
㉘
⑨
㉒
⑳
㉙
㉞
㊱
㉟
㉙
㊽
㉙
㊾
㉚
㉚
㊲
㊿
㉛
㉛
⑨
㉔
(51)
㊵
㊳
㉜
(52)
①
㊴
(54)
(53)
㉝
(55)
㊶
㊸
㊷
㊹
㊻
(56)
⑨
㉔
㊺

EXPLODED VIEW-4

| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 4- 1 | *5761813800 | CONTROL PCB BLK,S737-011 | |
| 4- 2 | *5761813700 | COVER,SENSOR SD158-12 | |
| 4- 3 | *5761813000 | SCREW,BIND 2.0X2.5 ZN UG11K-18 | |
| 4- 4 | *5761813600 | SCREW,PAN 2.0X4 ZN KG194-34 | |
| 4- 5 | *5761813400 | CHASSIS(L),SC207-11 | |
| 4- 6 | *5761791800 | SCREW,PAN 2.6X5 ZN FG114-14 | |
| 4- 7 | *5761689500 | SCREW,WAVE 2X6 UG12H-11 | |
| 4- 8 | 5761813300 | RF AMP BLK,S773-011 | |
| 4- 9 | *5761805000 | SCREW,PAN 1.7X4 ZN UG11W-13 | |
| 4-10 | 5761814400 | MTR BLK,S525-011 | |
| 4-11 | 5761814700 | BELT,LDG SF116-11 | |
| 4-12 | *5761813900 | GEAR BASE BLK,S627-011 | |
| 4-13 | *5761815200 | SCREW,PAN 2.0X2.0 NI FG121-16 | |
| 4-14 | *5761814500 | WORM(L),SN113-11 | |
| 4-15 | *5761815000 | WASHER,1.4X0.35 UG14P-11 | |
| 4-16 | 5761814600 | PULLEY,WARM SR122-11 | |
| 4-17 | *5761814800 | SW(T),MODE UE18E-12 | |
| 4-18 | *5761815100 | SCREW,PAN 1.7X4.5NBT UG17T-11 | |
| 4-19 | 5761814000 | GEAR,AL SN116-11 | |
| 4-20 | *5761814900 | WASHER,UJ13N-16 | |
| 4-21 | 5761814100 | WHEEL(L),WARM SN115-11 | |
| 4-22 | 5761814200 | GEAR,SN145-11 | |
| 4-23 | *5761814300 | RACK,LD SN146-12 | |
| 4-24 | *5761805200 | WASHER,POLI. 1.2X0.25 T FJ123-13 | |
| 4-25 | 5761806700 | REEL ASSY,SR117-21 | |
| 4-26 | *5761686500 | WASHER,UJ12B-11 | |
| 4-27 | *5761806800 | SPRING,BT SK113-12 | |
| 4-28 | *5761806300 | SENSOR BLK,S758-011 | |
| 4-29 | *5761806200 | WASHER,0.9X0.25 UJ13M-11 | |
| 4-30 | 5761806100 | TU ASSY,SR119-32 | |
| 4-31 | *5761806000 | WASHER,POLY. 1.4X0.25 FJ111-16 | |
| 4-32 | 5761806500 | ARM ASSY,ID GEAR SR114-13 | |
| 4-33 | *5761806400 | SPRING,CENTER SK112-12 | |
| 4-34 | *5761807800 | SCREW,PAN 1.7X6 ZB UG11W-14 | |
| 4-35 | *5761807700 | SENSOR BLK,S758-012 | |
| 4-36 | 5761807900 | GEAR,CENTER SN130-11 | |
| 4-37 | 5761808000 | WHEEL,WORM SN131-11 | |
| 4-38 | *5761807400 | SCREW,PAN 1.4X1.6 NI FG164-32 | |
| 4-39 | *5761807500 | BRACKET,MOTOR S149-013 | |
| 4-40 | 5761807600 | MOTOR,S064-017 | |
| 4-41 | *5761805600 | BASE BLK,GEAR S627-012 | ← Assy 5772923300 |
| 4-42 | *5761805100 | SCREW,PAN 1.7X8 NBT UG17T-12 | |
| 4-43 | *5761745600 | SLIDER,POLY. | |
| 4-44 | 5761805300 | PULLEY,CENTER SR115-11 | |
| 4-45 | 5761808100 | BELT,SF111-13 | |
| 4-46 | *5761815300 | DRIVER PCB BLK,S774-011 | |
| 4-47 | *5761807300 | LIMITER,SC159-12 | |
| 4-48 | *5761807100 | PLATE,BRAKE ACTUATING SC157-11 | |
| 4-49 | *5761807200 | SPRING,LIMITER SK128-11 | |
| 4-50 | *5761806900 | BRAKE(L),SOLENOID SD132-14 | |
| 4-51 | *5761807000 | BRAKE(R),SOLENOID SD133-14 | |
| 4-52 | 5761805800 | SOLENOID,SW122-11 | |
| 4-53 | *5761805900 | BRAKE,LEVER SD146-12 | |
| 4-54 | *5761805500 | SPRING,SK127-12 | |
| 4-55 | *5761805700 | BRACKET,SOLENOID SC192-12 | |
| 4-56 | *5761804900 | SCREW,PAN 2.0X5 ZN FG114-23 | |

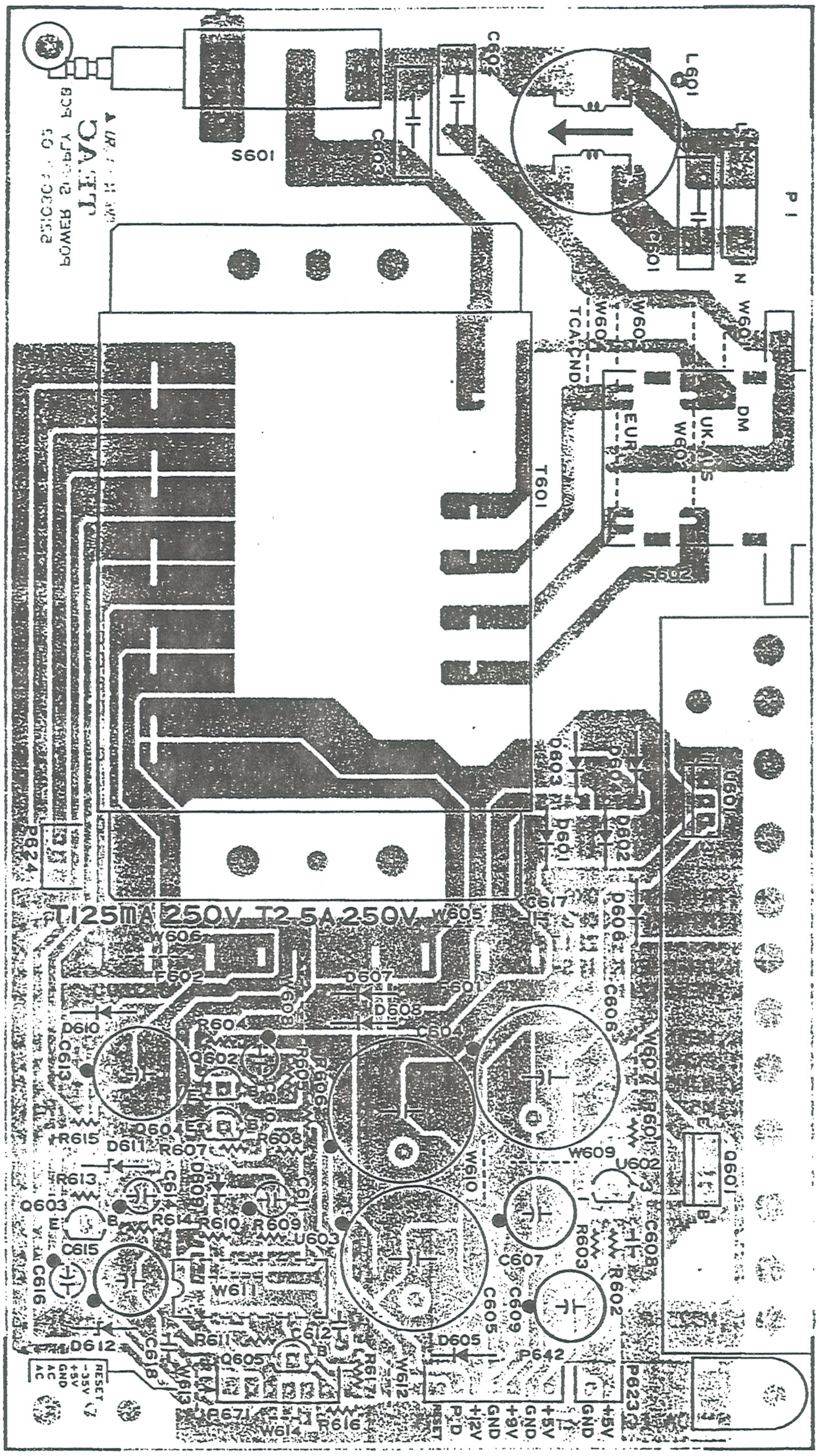
Parts marked with *require longer delivery time.

# EXPLODED VIEW-5



①
①
②
③
③
⑤
④
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
(52)
㉒
㉓
㉔
㉕
㉘
㉗
⑭
⑮
⑲
⑳
⑱
⑰
㉑
㉖
㉙
㉚
⑯
㉜
㉛
㊳
㊴
㊶
㉝
㉖
㊳
㊵
㉙
㉞
㉙
㊳
㉟
㊷
㊱
㊲
㊻
㊸
㊸
㊹
㊺
㊼
⑪
⑪
㊾
㊺
㊽
(51)
(50)

## POWER SUPPLY PCB ASSY


JVC
POWER SUPPLY PCB
S601
C603
C602
L601
P1
N
C601
W601
W602
W603
W604
TCA
GND
DM
UK AUS
EUR
T601
S602
D603
D604
D601
D602
U601
P624
T125mA 250V T2.5A250V
W605
W606
C617
D606
F602
F601
D607
D608
C606
R604
D610
C613
Q602
R605
R606
C604
W607
R601
W609
W610
U602
Q601
R615
D611
R607
R608
R613
C614
D609
C610
Q603
R614
R610
R609
U603
C615
C616
W611
C607
R603
C608
R602
C609
C605
D605
P642
D612
C618
R611
C612
Q605
R617
W612
W613
R671
W614
R616
P623
RESET
-15V
+5V
GND
AC
AC
RESET
P.D
+12V
GND
+9V
GND
+5V
GND
+5V

## AUDIO PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | *5200303200 | AUDIO PCB ASSY[J,US,C,GE] |
| | *5200303210 | AUDIO PCB ASSY[E,UK,A] |
| | *5210303202 | AUDIO PCB |
| | *5730021000 | HEATSINK,OSH-1625-SP |
| | *5780003008 | SCREW,BIND M3X8 |
| | *5801391900 | PLATE,EARTH |
| | *5332015800 | HOLDER,FUSE |
| C301,302 ⚠ | 5260309200 | C.,ELEC. 3300UF 25V M |
| C307,308 ⚠ | 5260463220 | C.,ELEC. 100UF 25V M |
| C311,312 ⚠ | 5260463020 | C.,ELEC. 100UF 10V M |
| C314 ⚠ | 5260424120 | C.,ELEC. 100UF 25V M |
| D101,201 | 5224012920 | DIODE,1S2473 |
| D102,202 | 5224012920 | DIODE,1S2473 |
| D103,203 | 5224018020 | DIODE,MC932 |
| D104,204 | 5224018020 | DIODE,MC932 |
| D301 | 5224016720 | DIODE,1SR35-200A FT |
| D302-305 ⚠ | 5224013210 | DIODE,DS135D FA4 FF |
| D306,307 | 5224012920 | DIODE,1S2473 |
| D308 | 5224016720 | DIODE,1SR35-200A FT |
| F1,2 ⚠ | 5041138000 | FUSE,500MA/250V T;MINI[E,UK,A] |
| J1,2 | 5334072900 | SOCKET,XLR CONN. |
| J3 | 5330513900 | JACK,PIN 6P |
| K101,201 | 5290011800 | RELAY,12V G2VN234P |
| K301 | 5290011800 | RELAY,12V G2VN234P |
| P1,2 | 5334072800 | PLUG,XLR CONN. |
| Q101,201 | 5145082000 | TR.,2SC-2060Q |
| Q102,202 | 5145082000 | TR.,2SC-2060Q |
| Q103,203 | 5145084000 | TR.,2SA-934Q |
| Q104,204 | 5145084000 | TR.,2SA-934Q |
| Q105,205 | 5231762520 | TR.,2SD1915TA |
| Q106,206 | 5231762520 | TR.,2SD1915TA |
| Q301 | 5230780920 | TR.,2SC2603F |
| Q302-304 | 5232254720 | TR.,DIGI. DTA114ES |
| Q305 | 5232256820 | TR.,DIGI. DTB143ES |
| Q306,307 | 5232255620 | TR.,DIGI. DTC114ES |
| R120,220 | 5280182302 | R.,TRIMMER 100KB H. |
| R126,226 | 5280182302 | R.,TRIMMER 100KB H. |
| R160,260 | 5242117800 | R.,ARRAY RMN Z8178 |
| TP1-3 | 5317002100 | PIN,DH CHECK 1PS-1136 |
| U101,201 | 5220431800 | IC.,NE5532AN |
| U102,202 | 5220431800 | IC.,NE5532AN |
| U103,203 | 5220075600 | IC.,PCM61P |
| U104,204 | 5220431100 | IC.,NJM5532S |
| U301 | 5220430500 | IC.,M5238P |
| U302 | 5220091200 | IC.,AK5326 |
| U303 | 5220443500 | IC.,TDA1542 |
| U304,306 | 13447956 | IC.,NJM7812FA |
| U305 | 13447973 | IC.,NJM7912FA |
| U307 | 13447952 | IC.,NJM7805FA |
| U308 | 13447969 | IC.,NJM7905FA |
| U309 | 5220430500 | IC.,M5238P |

[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

## DIGITAL PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | *5200304100 | DIGITAL PCB ASSY |
| | *5210304101 | DIGITAL PCB |
| | *5332016900 | IC.,SOCKET 64P |
| | *5800752900 | HEATSINK |
| | *5783723008 | SCREW,BIND B-TITE M3X8 |
| | *5801387500 | PLATE,EARTH DIGITAL |
| D401 | 13411618 | DIODE,DA119 |
| D403 | 5224018020 | DIODE,MC932 |
| D404 | 5224018020 | DIODE,MC932 |
| D405 | 5224018020 | DIODE,MC932 |
| D406 | 5224018020 | DIODE,MC932 |
| D407 | 13411618 | DIODE,DA119 |
| D408 | 13411618 | DIODE,DA119 |
| D409 | 5224573201 | DIODE,ZENER RD5.1EL2 FR |
| D410 | 5224573201 | DIODE,ZENER RD5.1EL2 FR |
| D411 | 5224572201 | DIODE,ZENER RD3.6EL2 FR |
| D412 | 5224572201 | DIODE,ZENER RD3.6EL2 FR |
| D413 | 5224013210 | DIODE,DS135D FA4 FF |
| D414 | 13411618 | DIODE,DA119 |
| J5 | 5330512700 | JACK,PIN 1P YKB11-0400 |
| J6 | 5330512700 | JACK,PIN 1P YKB11-0400 |
| J7 | 5334072900 | SOCKET,XLR CONN. |
| L401 | 5286033320 | COIL,CHOKE 3.3UH K(LAP2T)VT |
| L402 | 5286033520 | COIL,CHOKE 4.7UH(LAP2T)VT |
| L403 | 5286030200 | COIL,CHOKE 47UH LAL04KB |
| P3 | 5334072800 | PLUG,XLR CONN. |
| P405 | 5336249600 | PLUG,CONN. B06B-PH-K-S(WHT) |
| P406 | 5336249500 | PLUG,CONN. B05B-PH-K-S(WHT) |
| P411 | 5336249900 | PLUG,CONN. B09B-PH-K-S(WHT) |
| P412 | 5336249200 | PLUG,CONN. B02B-PH-K-S(WHT) |
| P421 | 5336249500 | PLUG,CONN. B05B-PH-K-S(WHT) |
| P422 | 5336249500 | PLUG,CONN. B05B-PH-K-S(WHT) |
| P423 | 5336249400 | PLUG,CONN. B04B-PH-K-S(WHT) |
| P472 | 5336249900 | PLUG,CONN. B09B-PH-K-S(WHT) |
| Q401 | 13428288 | TR.,(DTC144EKT-96) |
| Q403 | 13428288 | TR.,(DTC144EKT-96) |
| Q404 | 13427337 | TR.,2SC2412K |
| Q405 | 13427337 | TR.,2SC2412K |
| Q406 | 5230782500 | TR.,2SC2620C TL |
| Q407 | 5230782500 | TR.,2SC2620C TL |
| Q408 | 13427337 | TR.,2SC2412K |
| Q409 | 5230509700 | TR.,2SB1274R |
| Q410 | 13428288 | TR,(DTC144EKT-96) |
| Q411 | 13427337 | TR.,2SC2412K |
| Q412 | 5230509700 | TR.,2SB1274R |
| Q413 | 13428288 | TR.,(DTC144EKT-96) |
| Q414 | 13428288 | TR.,(DTC144EKT-96) |
| Q415 | 13428288 | TR.,(DTC144EKT-96) |
| Q416 | 13428288 | TR.,(DTC144EKT-96) |
| Q417 | 13428288 | TR.,(DTC144EKT-96) |
| Q418 | 13427337 | TR.,2SC2412K |
| Q419 | 13427337 | TR.,2SC2412K |
| Q420 | 13428288 | TR.,(DTC144EKT-96) |
| Q421 | 13428288 | TR.,(DTC144EKT-96) |
| Q422 | 13428288 | TR.,(DTC144EKT-96) |
| Q423 | 13428288 | TR.,(DTC144EKT-96) |
| Q424 | 5231762600 | TR.,2SD1221Y |
| Q425 | 5230510200 | TR.,2SB880 |
| Q426 | 13428288 | TR,(DTC144EKT-96) |
| Q427 | 13428288 | TR.,(DTC144EKT-96) |

EXPLODED VIEW-5

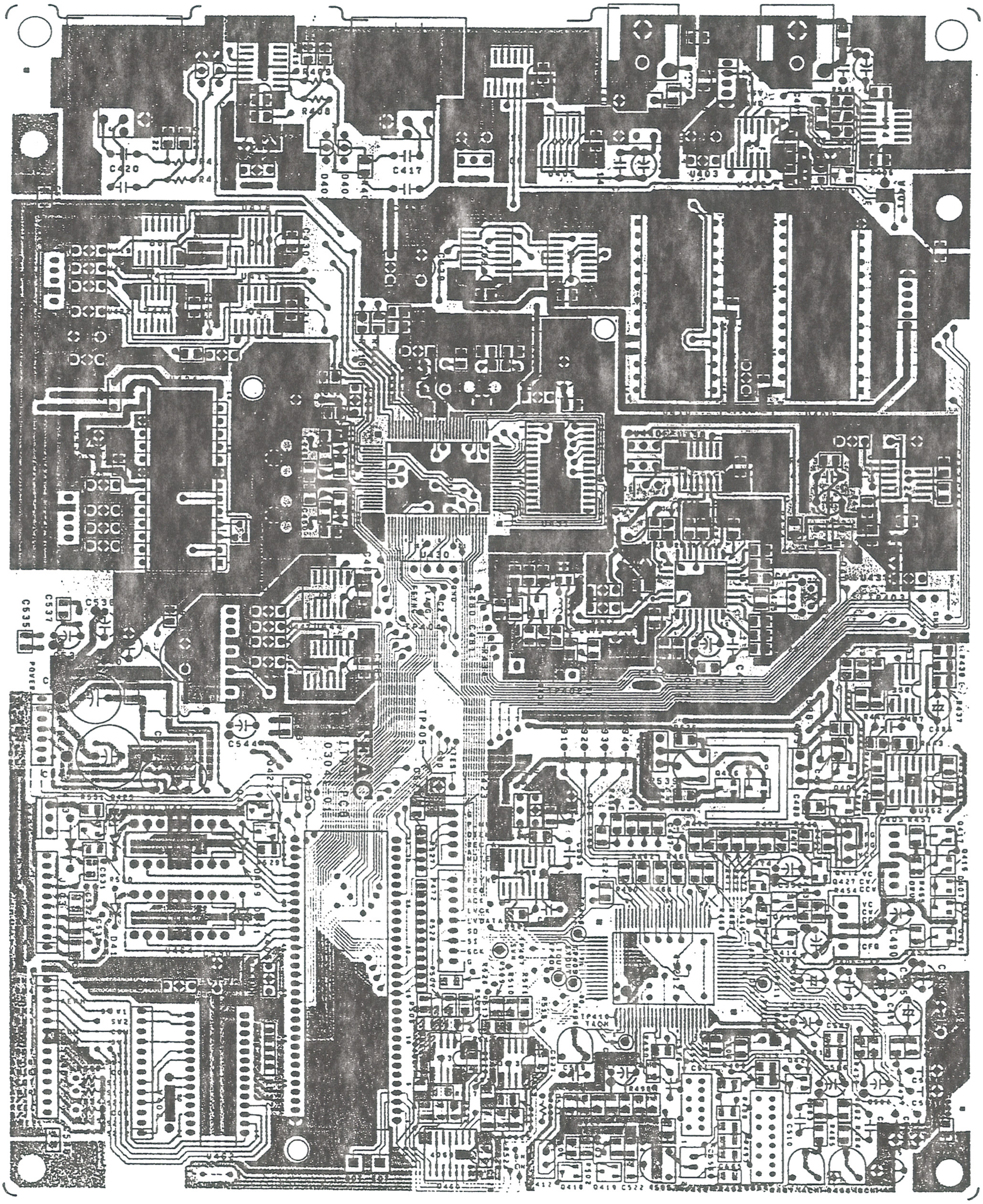
| REF.NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 5- 1 | *5761812800 | SCREW,PAN 2.0X8 NI FG140-26 | |
| 5- 2 | 5761812700 | CYLINDER ASSY,CYKC2W005A | |
| 5- 3 | 5761812400 | ROLLER,GUIDE SQ123-11 | |
| 5- 4 | 5761812000 | INCLINED GUIDE ASSY,S272-016 | |
| 5- 5 | 5761811900 | INCLINED GUIDE ASSY,S272-015 | |
| 5- 6 | *5761811400 | SCREW,M1.7X2 FG164-12 | |
| 5- 7 | *5761811000 | SP ADJUST,SC129-12 | |
| 5- 8 | *5761811500 | SPRING,SK117-13 | |
| 5- 9 | *5761811100 | SCREW,PAN 2.0X5 ZN KG194-35 | |
| 5-10 | 5761810900 | PI GUIDE ASSY,SQ114-14 | |
| 5-11 | *5761686100 | E-RING KG111-19 | |
| 5-12 | *5761812600 | WASHER,2.1X0.25 FJ123-20 | |
| 5-13 | *5761811800 | SPRING(G),SLIDE SK143-11 | |
| 5-14 | *5761811700 | SCREW,PAN 1.7X2.5 NB FG164-20 | |
| 5-15 | 5761811600 | BELT ASSY,TENSION SZ122-12 | |
| 5-16 | *5761811300 | ARM ASSY,TENSION SQ120-12 | |
| 5-17 | *5761811200 | SPRING,TG-K SK122-12 | |
| 5-18 | *5761812100 | SPRING,R-PLAY BT SK114-15 | |
| 5-19 | *5761812300 | PLATE,SPRING SC142-12 | |
| 5-20 | *5761812200 | SPRING;HOLD SK121-16 | |
| 5-21 | *5761809600 | SCREW,PAN 1.7X2.5 NI UG15K-12 | |
| 5-22 | *5761810700 | NUT,PI SD157-11 | |
| 5-23 | *5761810600 | ROLLER(P),SL230-12 | |
| 5-24 | *5761810500 | FLANGE(P),SL231-11 | |
| 5-25 | *5761810400 | SPRING,P2 SK139-11 | |
| 5-26 | *5761805200 | WASHER,POLY. 1.2X0.25 T FJ123-13 | |
| 5-27 | *5761810200 | PINCH ROLLER ASSY,SR118-13 | |
| 5-28 | *5761810300 | SPRING,PINCH ROLLER SK118-16 | |
| 5-29 | *5761688400 | WASHER | |
| 5-30 | *5761810000 | ROLLER,SLD SL113-13 | |
| 5-31 | *5761810100 | SLIDER LDG BLK,S637-012 | |
| 5-32 | *5761809900 | SPRING,TG-(R) SK140-12 | |
| 5-33 | *5761810800 | CHASSIS BASE BLK,S612-011 | |
| 5-34 | 5761809800 | ROLLER,SLD SL139-13 | |
| 5-35 | 5761808200 | MOTOR,CAPSTAN MMFN5Z001A | |
| 5-36 | *5761808400 | LEVER,LDG BLK S682-011 | |
| 5-37 | *5761808300 | ES-RING 3.0 ZU KG111-13 | |
| 5-38 | *5761813000 | SCREW,BIND 2.0X2.5 ZN UG11K-18 | |
| 5-39 | *5761812900 | SPPW52,UE16C-11 | |
| 5-40 | *5761813100 | SPPW53006,UE18M-11 | |
| 5-41 | *5761813200 | RELAY PCB,S237-021 | |
| 5-42 | *5761809500 | SLIDER LDG BLK,S637-011 | |
| 5-43 | *5761809300 | CALLAR,LOD SL133-12 | |
| 5-44 | *5761809100 | LINK LDG BLK,S551-011 | |
| 5-45 | *5761809000 | ES-RING 1.5 ZU KG111-18 | |
| 5-46 | *5761808900 | SPRING(L),LDG SK119-13 | |
| 5-47 | *5761809400 | LINK LDG BLK,S551-012 | |
| 5-48 | *5761808600 | SPRING(R),LDG SK120-12 | |
| 5-49 | *5761808800 | PLATE(1),SPRING SC119-11 | |
| 5-50 | *5761808700 | PLATE(2),SPRING SC120-11 | |
| 5-51 | *5761808500 | E-RING UG13U-12 | |
| 5-52 | *5761812500 | SLIDE F/R,SC143-12 | |

Parts marked with *require longer delivery time.

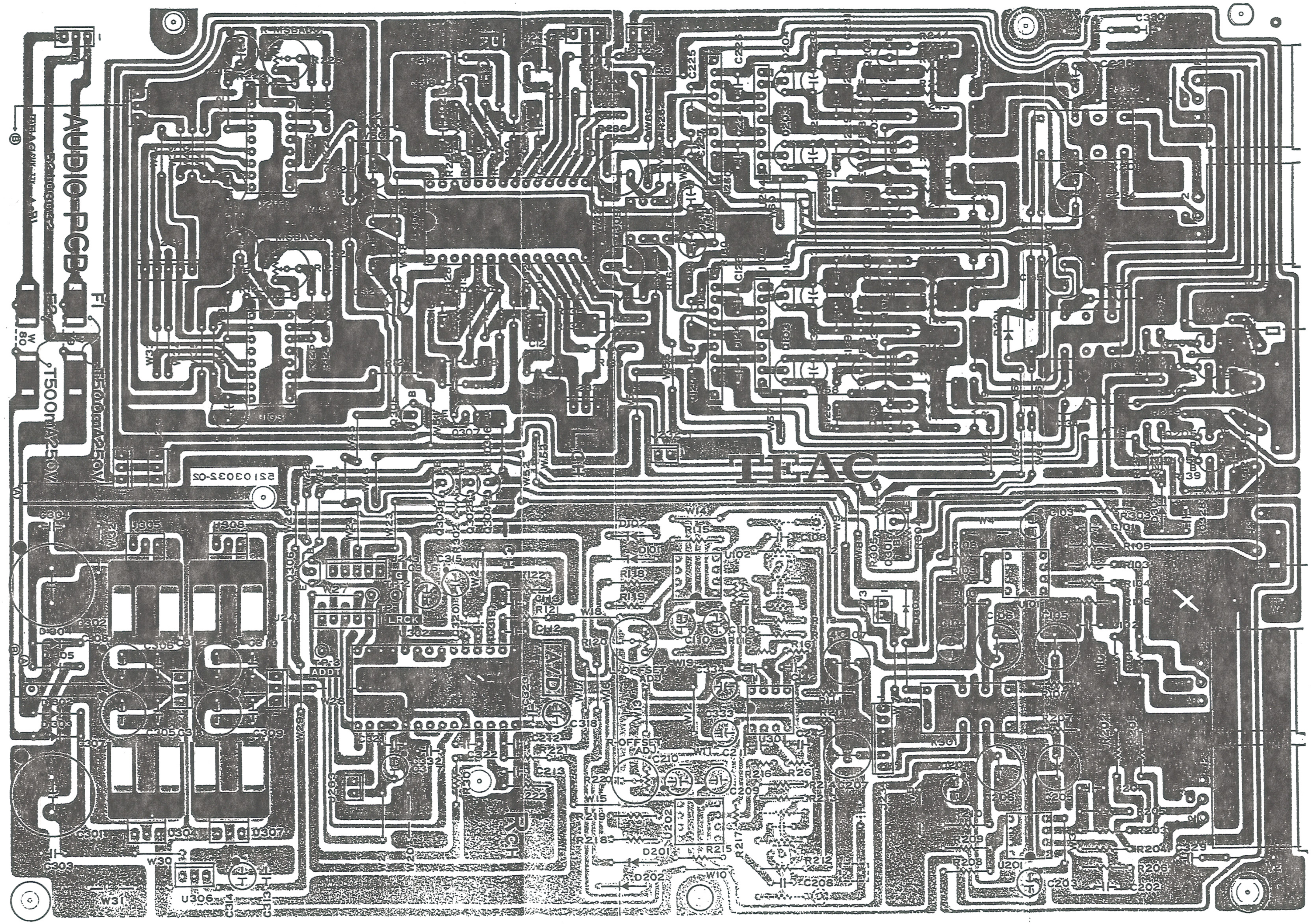
# 6. P C BOARDS AND PARTS LISTS

## 基板図と部品表

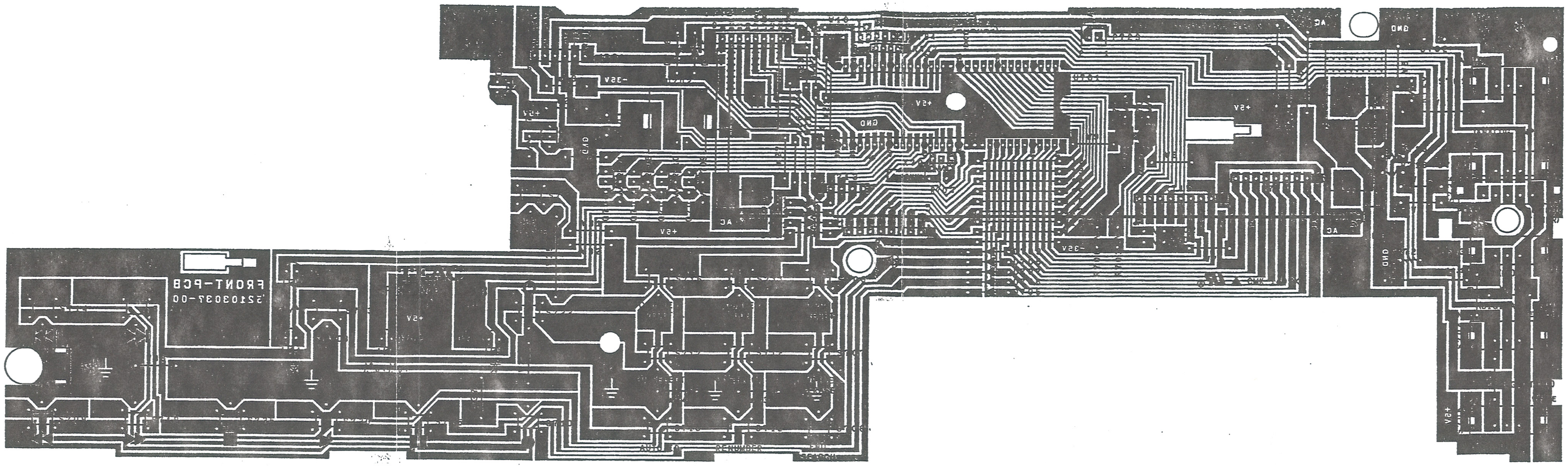
### DIGITAL PCB ASSY


C420
C417
R408
U403
C535
C537
C536
POWER
C544
TP405
TP410
Q418
Q419
C522
C510
C490
R454
Q427
R437
R430
U462
U461

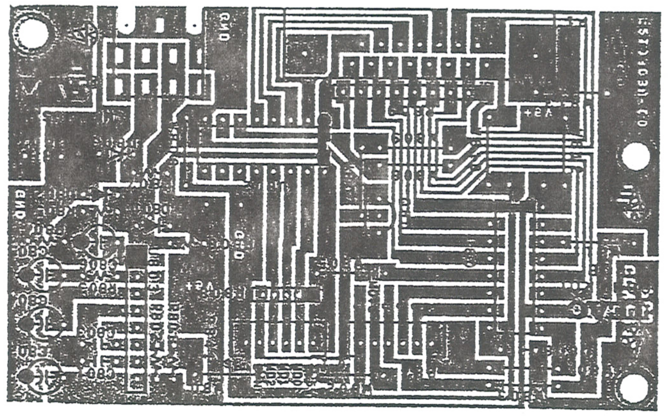
AUDIO PCB ASSY


AUDIO PCB
TEAC
T500mA/250V
F1
LRCK
ADDT
OFFSET ADJ.
Rch
Lch
U201
U202
U301
U302
U306
W30
W31
D201
D202
C303
C304
C329
C330

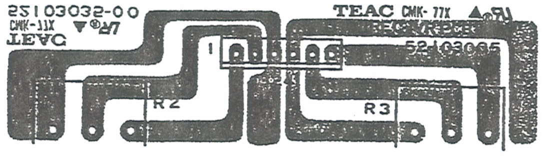
FRONT PCB ASSY


FRONT-PCB
52103037-00
GND
+5V
-35V
AC

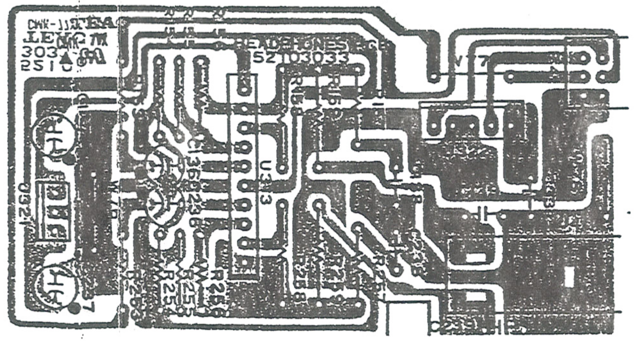
CONTROL PCB ASSY



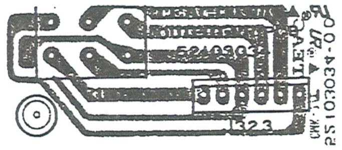
REC-VR PCB ASSY


52103032-00
TEAC
CMK-77X
52103065
R2
R3

HEADPHONES PCB ASSY


TEAC
HEADPHONES
52103033

OUTPUT-VR PCB ASSY


52103034-00
LEVEL

## DIGITAL PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| Q428 | 13428288 | TR.,(DTC144EKT-96) |
| R429 | 5280021300 | R.,TRIMMER 10KB |
| R486 | 5280021100 | R.,TRIMMER 4.7KB |
| R487 | 5280021100 | R.,TRIMMER 4.7KB |
| R496 | 5280216500 | R.,TRIMMER 220KB |
| R505 | 5280021300 | R.,TRIMMER 10KB H. |
| R527 | 5242121800 | R.,ARRAY RYLS-4J103 |
| R528 | 5242122300 | R.,ARRAY RYLS-11J103 |
| R532 | 5242121800 | R.,ARRAY RYLS-4J103 |
| R538 | 5241183310 | R.,IMCOMB. 1W 6.8 OHM |
| R539 | 5280021700 | R.,TRIMMER,47KB H. |
| T401 | 5320046300 | TRANS,PLL TC1027-04 |
| T402 | 5286039000 | COIL,OSC 9.4MHZ |
| TP401 | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| TP402 | 5334042500 | PLUG,CONN. 2P DSP02 |
| TP403 | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| TP404 | 5336303400 | PLUG,CONN. B4B-EH(WHT) |
| TP405 | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| TP406 | 5317002100 | PIN,DH CHECK IPS-1136 |
| TP407 | 5317002100 | PIN,DH CHECK IPS-1136 |
| TP410 | 5317002100 | PIN,DH CHECK IPS-1136 |
| TP411 | 5317002100 | PIN,DH CHECK IPS-1136 |
| TP412 | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| TP413 | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| U401 | 5220093600 | IC.,DIGI. TC74HCU04AF-TP2 |
| U402 | 5220093300 | IC.,DIGI. TC74HC00AF-TP2 |
| U403 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U404 | 5220093300 | IC.,DIGI. TC74HC00AF-TP2 |
| U405 | 5220093600 | IC.,DIGI. TC74HCU04AF-TP2 |
| U406 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U407 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U408 | 5220094300 | IC.,DIGI. MC34050MEL |
| U409 | 5220824700 | MICROCOMPUTER,UPD75P402AC-013 |
| U410 | 5220091600 | IC.,DIGI. CX23033 |
| U411 | 5220093400 | IC.,DIGI. TC74HC02AF-TP2 |
| U412 | 5220094000 | IC.,DIGI. TC74HC109AF-TP2 |
| U413 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U414 | 5220093600 | IC.,DIGI. TC74HCU04AF-TP2 |
| U415 | 5220093600 | IC.,DIGI. TC74HCU04AF-TP2 |
| U416 | 5220093900 | IC.,DIGI. TC74HC86AF-TP2 |
| U417 | 5220093800 | IC.,DIGI. TC74HC74AF-TP2 |
| U418 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U419 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U420 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U421 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U422 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U423 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U424 | 5220091100 | IC.,DIGI. SM5813APT |
| U425 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U426 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U427 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U428 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U429 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U430 | 5220091400 | IC.,DIGI. HD49211FS |
| U431 | 5220094400 | IC.,DIGI. HM65256BLF-12TT |
| U432 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U433 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U434 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U435 | 5220444600 | IC.,SN74LS624NS-ELS |
| U436 | 5292807800 | FILTER,EMC-EMT 22PFC |

## DIGITAL PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| U437 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U438 | 5220093500 | IC.,DIGI. TC74HC04AF-TP2 |
| U439 | 5220443600 | IC.,HA12062AMP |
| U440 | 5292807900 | FILTER,EMC-EMT 47PFC |
| U441 | 5292807900 | FILTER,EMC-EMT 47PFC |
| U442 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U443 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U444 | 5220093700 | IC.,DIGI. TC74HC08AF-TP2 |
| U445 | 5220093500 | IC.,DIGI. TC74HC04AF-TP2 |
| U446 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U447 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U448 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U449 | 5292808000 | FILTER,EMC-EMT 100PFC |
| U451 | 5220444400 | IC.,UPC358G2(MS)-E2 |
| U452 | 5220444300 | IC.,UPC324G2(MS)-E2 |
| U453 | 5220091500 | IC.,DIGI. HD49212 |
| U454 | 5292809900 | FILTER,BANDPASS (SYNC) |
| U455 | 5292809800 | FILTER,LOWPASS (PILOT) |
| U456 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U457 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U458 | 5220444500 | IC.,UPC393G2(MS)-E2 |
| U459 | 5220444500 | IC.,UPC393G2(MS)-E2 |
| U460 | 5220094100 | IC.,DIGI. TC4069UBF-TP2 |
| U461 | 5220823302 | MICROCOMPUTER,UPD75P116CW-003 |
| U462 | 5220019700 | IC.,LC7800 |
| U463 | 5220430200 | IC.,LB1649 |
| U464 | 5220430200 | IC.,LB1649 |
| U465 | 5292808600 | FILTER,EMC-EMT 10000PFC |
| U466 | 5220094200 | IC.,DIGI. TC4538BF-TP2 |
| X401 | 5347017000 | OSC.,CRYSTAL 37.632MHZ |
| X402 | 5347017200 | OSC.,CRYSTAL 11.2896MHZ |
| X403 | 5347017100 | OSC.,CRYSTAL 12.288MHZ |
| X404 | 5347012000 | OSC.,CERAMIC CST4,19MGW |
| X405 | 5347012000 | OSC.,CERAMIC CST4,19MGW |

Parts marked with *require longer delivery time.

## FRONT PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
|  | *5200303700 | FRONT PCB ASSY |
|  | *5210303701 | FRONT PCB |
|  | *5332016900 | IC.,SOCKET 64P |
|  | *5555590000 | PLATE(A),EARTH |
|  | *5801349600 | CUSION,FL |
|  | *5801350100 | SPACER,LED |
| D701 | 5224012920 | DIODE,1S2473 |
| D702 | 5224012920 | DIODE,1S2473 |
| D703 | 5224012920 | DIODE,1S2473 |
| D704 | 5224012920 | DIODE,1S2473 |
| D705 | 5224012920 | DIODE,1S2473 |
| D706 | 5224012920 | DIODE,1S2473 |
| D707 | 5224012920 | DIODE,1S2473 |
| D708 | 5224012920 | DIODE,1S2473 |
| D709 | 5224012920 | DIODE,1S2473 |
| D710 | 5225025600 | LED.,SLP-677B-50 |
| D711 | 5225021500 | LED.,SLP177B-50 |
| D712 | 5225025600 | LED.,SLP-677B-50 |
| D713 | 5225021600 | LED.,SLP277B-50 |
| D714 | 5225025600 | LED.,SLP-677B-50 |
| FL1 | 5347017300 | TUBE,FL FIP10AMW8 |
| P723 | 5336249200 | PLUG,CONN. B02B-PH-K-S(WHT) |
| Q701 | 5230780920 | TR.,2SC2603F |
| Q702 | 5230780920 | TR.,2SC2603F |
| Q703 | 5232255620 | TR.,DIGI. DTC114ES |
| Q704 | 5232255620 | TR.,DIGI. DTC114ES |
| Q705 | 5232255620 | TR.,DIGI. DTC114ES |
| Q706 | 5232255620 | TR.,DIGI. DTC114ES |
| Q707 | 5232255620 | TR.,DIGI. DTC114ES |
| R713 | 5242119200 | R.,ARRAY RMLS-4J223 |
| R714 | 5242117300 | R.,ARRAY RML-S8J-104 |
| R715 | 5242117300 | R.,ARRAY RML-S8J-104 |
| R716 | 5242117300 | R.,ARRAY RML-S8J-104 |
| S701 | 5300915300 | SW.,SLIDE 1-2N ESD1511205 |
| S702 | 5300915300 | SW.,SLIDE 1-2N ESD1511205 |
| S703 | 5300915300 | SW.,SLIDE 1-2N ESD1511205 |
| S704 | 5300915300 | SW.,SLIDE 1-2N ESD1511205 |
| S705 | 5300915300 | SW.,SLIDE 1-2N ESD1511205 |
| S706 | 5302101800 | SW.,TACT KHH15906 |
| S707 | 5302101800 | SW.,TACT KHH15906 |
| S708 | 5302101800 | SW.,TACT KHH15906 |
| S709 | 5302101800 | SW.,TACT KHH15906 |
| S710 | 5302101800 | SW.,TACT KHH15906 |
| S711 | 5302101800 | SW.,TACT KHH15906 |
| S712 | 5302101800 | SW.,TACT KHH15906 |
| S713 | 5302101800 | SW.,TACT KHH15906 |
| S714 | 5302101800 | SW.,TACT KHH15906 |
| S715 | 5302101800 | SW.,TACT KHH15906 |
| S716 | 5302101800 | SW.,TACT KHH15906 |
| S717 | 5302101800 | SW.,TACT KHH15906 |
| S718 | 5302101800 | SW.,TACT KHH15906 |
| S719 | 5302101800 | SW.,TACT KHH15906 |
| S720 | 5302101800 | SW.,TACT KHH15906 |
| S721 | 5302101800 | SW.,TACT KHH15906 |
| S722 | 5302101800 | SW.,TACT KHH15906 |
| S723 | 5302101800 | SW.,TACT KHH15906 |
| S724 | 5302101800 | SW.,TACT KHH15906 |
| S725 | 5302101800 | SW.,TACT KHH15906 |
| U701 | 5220825200 | MICROCOMPUTER, HD404729A72S |
| X701 | 5347012000 | OSC.,CERAMIC CST4,19MGW |

## CONTROL PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
|  | *5200303800 | CONTROL PCB ASSY |
|  | *5210303800 | CONTROL PCB |
| D801,802 | 5224015020 | DIODE,1SS133T-77 |
| D803 | 5224571801 | DIODE,ZENER RD3.0FL2 FR |
| J1 | 5330016100 | JACK,3 POLE |
| P1 | 5334055000 | SOCKET,CONN. 15P |
| P841 | 5336251600 | PLUG,CONN. B06B-PH-K-R(RED) |
| P874 | 5336249600 | PLUG,CONN. B06B-PH-K-S(WHT) |
| Q801 | 5232255620 | TR.,DIGI. DTC114ES |
| R808 | 5242121800 | R.,ARRAY RYLS-4J103 |
| R809 | 5242118900 | R.,ARRAY RMLS 8J223 |
| U801 | 13442774 | IC.,(SN74LS147N) |
| U802 | 13441784 | IC.,(SN74LS145N) |
| U803 | 5220430900 | IC.,IR3T11 |

## HEADPHONES PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
|  | *5200303300 | HEADPHONES PCB ASSY |
|  | *5210303300 | HEADPHONES PCB |
| J4 | 5330013500 | JACK,3P FJ332DB-N |
| R158,258 | 5180018000 | R.,CARBON R50 2.2 OHM |
| R159,259 | 5180044000 | R.,CARBON R50 27 OHM |
| R4 | 5282417000 | VR.,IS2UVR 9,20KAX2 |
| U313 | 5220438700 | IC.,LA6510 |

## OUTPUT-VR PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
|  | *5200303400 | OUTPUT-VR PCB ASSY |
|  | *5210303400 | OUTPUT-VR PCB |
| R1 | *5282416900 | VR.,IS2UVR 16,20KAX2 |

## REC-VR PCB ASSY

| REF.NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
|  | *5200303500 | REC-VR PCB ASSY |
|  | *5210303500 | REC-VR PCB |
| R2 R3 | *5282022500 | VR.,IS1UVR 16, 20KAX1 |

Parts marked with *require longer delivery time.

POWER SUPPLY PCB ASSY

| REF.NO. | | PARTS NO. | DESCRIPTION |
|---|---|---|---|
| | | *5200304000 | POWER SUPPLY PCB ASSY[J] |
| | | *5200304010 | POWER SUPPLY PCB ASSY[US] |
| | | *5200304020 | POWER SUPPLY PCB ASSY[C] |
| | | *5200304030 | POWER SUPPLY PCB ASSY[GE] |
| | | *5200304040 | POWER SUPPLY PCB ASSY[E] |
| | | *5200304050 | POWER SUPPLY PCB ASSY[UK] |
| | | *5200304060 | POWER SUPPLY PCB ASSY[A] |
| | | *5210304002 | POWER SUPPLY PCB |
| | | *5800501502 | HEATSINK |
| | | *5780003008 | SCREW,BIND M3X8 |
| | | *5555590000 | PLATE(A),EARTH |
| | | *5350015600 | CODE,AC[J] |
| | | *5350010700 | CODE,AC[US,C,GE] |
| | | *5350011700 | CODE,AC[E] |
| | | *5128047000 | CODE,AC[UK] |
| | | *5350008300 | CODE,AC[A] |
| | | *5332015800 | HOLDER,FUSE[E,UK,A] |
| | | *5730007500 | COVER,CONDENSOR[E,UK,A] |
| C601-603 | ⚠ | 5267703800 | C.,SPARK KIL. 4700PF 400V M |
| C604 | ⚠ | 5260428110 | C.,ELEC. 4700UF 16V |
| C605,606 | ⚠ | 5262014700 | C.,ELEC. 10000UF 16V |
| C607 | ⚠ | 5260425810 | C.,ELEC. 470UF 16V |
| C609 | ⚠ | 5260424520 | C.,ELEC. 220UF 10V |
| C610 | ⚠ | 5260420920 | C.,ELEC. 0.47UF/50V |
| C613 | ⚠ | 5260424910 | C.,ELEC. 220UF 50V |
| C615 | ⚠ | 5260424320 | C.,ELEC. 100UF 50V |
| C617,618 | ⚠ | 12907113 | C.,CC 25V 22000PF Z |
| D601-608 | ⚠ | 5224013210 | DIODE,DS135D FA4 FF |
| D609 | | 5224015020 | DIODE,1SS133T-77 |
| D610 | ⚠ | 5224013210 | DIODE,DS135D FA4 FF |
| D611 | | 5224580201 | DIODE,ZENER RD39EL1 FR |
| D612 | | 5224574701 | DIODE,ZENER RD8.2EL2 FR |
| F601 | ⚠ | 5142190000 | FUSE,2.5A/250V T;MINI[E,UK,A] |
| F602 | ⚠ | 5142180000 | FUSE,125MA/250V T;MINI[E,UK,A] |
| L601 | ⚠ | 5292806300 | FILTER,NOISE FK0816MH13 |
| P001 | | 5327007200 | TERMINAL,2P |
| P623 | | 5336303200 | PLUG,CONN. B2B-EH(WHT) |
| P624 | | 5336303300 | PLUG,CONN. B3B-EH(WHT) |
| P642 | | 5336303700 | PUG,CONN. B7B-EH(WHT) |
| P671 | | 5336303600 | PLUG,CONN. B6B-EH(WHT) |
| Q601 | ⚠ | 5230509700 | TR.,2SB1274R |
| Q602 | | 5230780920 | TR.,2SC2603F |
| Q603 | ⚠ | 5145085000 | TR.,2SA-934R |
| Q604,605 | | 5232255720 | TR.,DIGI. DTC124ES |
| R601 | ⚠ | 5240026620 | R.,CARBON 220 R10 T |
| S601 | ⚠ | 5300054700 | SW.,PUSH SDDLD1 1-1 |
| S602 | ⚠ | 5332019900 | SELECTOR,VOLTAGE 1-3 FS908E[GE] |
| T601 | ⚠ | 5320059000 | TRANS,POWER |
| U601 | ⚠ | 5220434600 | IC.,M5F7809L |
| U602 | ⚠ | 5220428400 | IC.,M5236L |
| U603 | | 5220051800 | IC.,TC74HC04P |

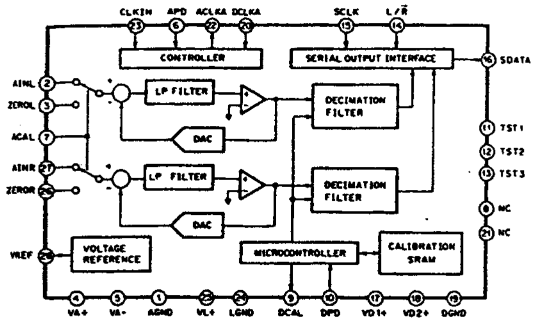
[J]:JAPAN [US]:U.S.A. [C]:CANADA [GE]:GENERAL EXPORT
[E]:EUROPE [UK]:U.K. [A]:AUSTRALIA

Parts marked with *require longer delivery time.

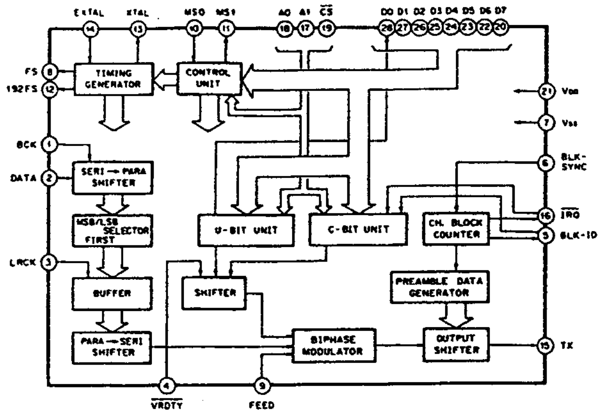
# 7. IC BLOCK DIAGRAMS

## ICブロック・ダイアグラム

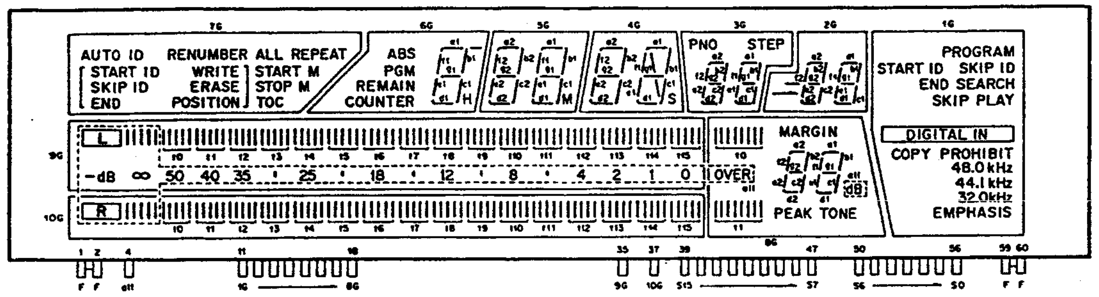
AK5326
16 bit Over-sampling Servo A/D Converter


CLKIN
APD
ACLKA
DCLKA
SCLK
L/R
CONTROLLER
SERIAL OUTPUT INTERFACE
SDATA
AINL
ZEROL
ACAL
AINR
ZEROR
VREF
LP FILTER
DAC
DECIMATION FILTER
TST1
TST2
TST3
NC
VOLTAGE REFERENCE
MICROCONTROLLER
CALIBRATION SRAM
VA+
VA-
AGND
VL+
LGND
DCAL
DPD
VD1+
VD2+
DGND

CX23033
Digital Audio Data Modulation Transmitting IC

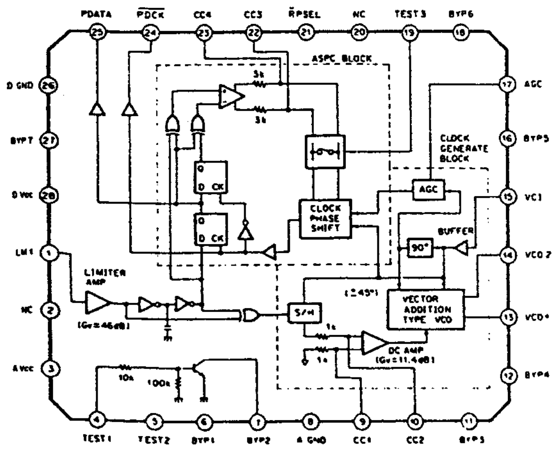

EXTAL
XTAL
MS0
MS1
A0
A1
CS
D0 D1 D2 D3 D4 D5 D6 D7
FS
192FS
TIMING GENERATOR
CONTROL UNIT
VDD
VSS
BCK
DATA
SERI → PARA SHIFTER
MSB/LSB SELECTOR FIRST
BLK-SYNC
IRQ
BLK-ID
U-BIT UNIT
C-BIT UNIT
CH. BLOCK COUNTER
LRCK
BUFFER
SHIFTER
PREAMBLE DATA GENERATOR
PARA → SERI SHIFTER
BIPHASE MODULATOR
OUTPUT SHIFTER
TX
VRDTY
FEED

FIP10AMW8
FL Tube

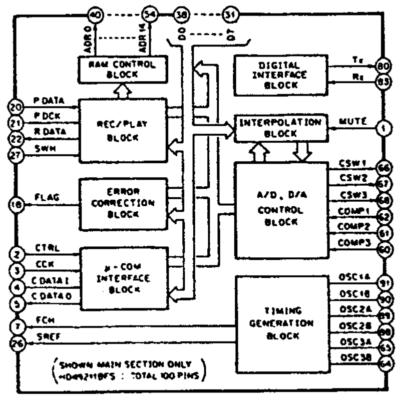

AUTO ID
RENUMBER
ALL
REPEAT
START ID
WRITE
START M
SKIP ID
ERASE
STOP M
END
POSITION
TOC
ABS
PGM
REMAIN
COUNTER
PNO
STEP
PROGRAM
START ID
SKIP ID
END
SEARCH
SKIP PLAY
-dB
50 40 35 25 18 12 8 4 2 1 0
OVER
MARGIN
PEAK TONE
DIGITAL IN
COPY PROHIBIT
48.0kHz
44.1kHz
32.0kHz
EMPHASIS
1G
8G
9G
10G
S15
S7
S6
S0

| | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|---|---|---|
| S0 | t0 | t0 | t0 | TOC | COUNTER | d2 | d2 | d2 | d2 | |
| S1 | t1 | t1 | t1 | STOP M | REMAIN | e2 | e2 | e2 | e2 | |
| S2 | t2 | t2 | a2, d2 | START M | PGM | c2 | c2 | c2 | c2 | EMPHASIS |
| S3 | t3 | t3 | e2 | REPEAT | ABS | g2 | g2 | g2 | g2 | 32.0kHz |
| S4 | t4 | t4 | g2 | ALL | | f2 | f2 | f2 | f2 | 44.1kHz |
| S5 | t5 | t5 | c2 | [ ] | | b2 | b2 | b2 | b2 | 48.0kHz |
| S6 | t6 | t6 | b2 | POSITION | | a2 | a2 | a2 | a2 | COPY PROHIBIT |
| S7 | t7 | t7 | MARGIN | ERASE | H | M | S | PNO | — | DIGITAL IN |
| S8 | t8 | t8 | d1 | WRITE | d1 | d1 | d1 | d1 | d1 | |
| S9 | t9 | t9 | e1 | RENUMBER | e1 | e1 | e1 | e1 | e1 | SKIP PLAY |
| S10 | t10 | t10 | c1 | END | c1 | c1 | c1 | c1 | c1 | SEARCH |
| S11 | t11 | t11 | g1 | SKIP ID | g1 | g1 | g1 | g1 | g1 | END |
| S12 | t12 | t12 | f1 | START ID | f1 | f1 | f1 | f1 | f1 | SKIP ID |
| S13 | t13 | t13 | b1 | AUTO ID | b1 | b1 | b1 | b1 | b1 | START ID |
| S14 | t14 | t14 | PEAK TONE | | — | | \ | STEP | — | |
| S15 | t15 | t15 | a1 | | a1 | a1 | a1 | a1 | a1 | PROGRAM |

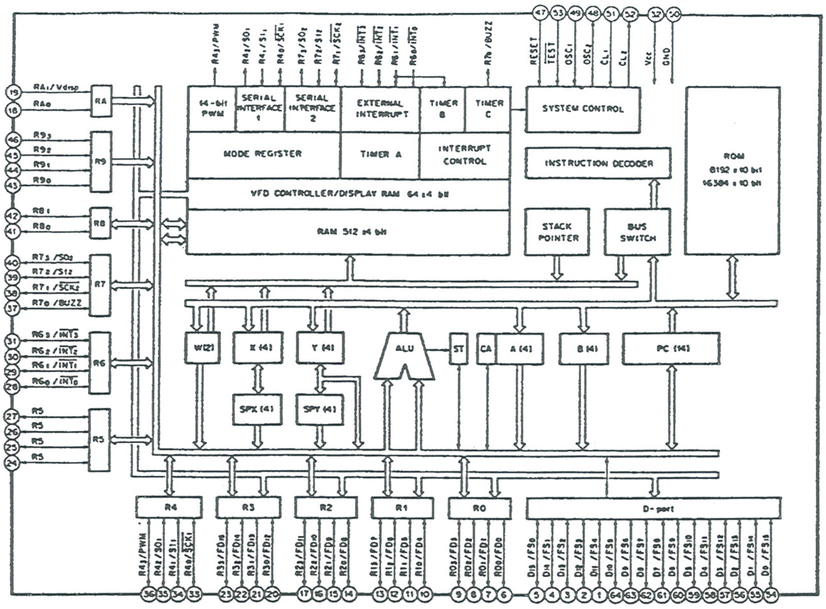
HA12062AMP
Data Strobe IC


PDATA
PDCK
CC4
CC3
RPSEL
NC
TEST3
BYP6
D GND
BYP7
D Vcc
LM1
NC
A Vcc
ASPC BLOCK
3k
CLOCK GENERATE BLOCK
AGC
BYP5
VC1
VCO2
VCO+
BYP4
CLOCK PHASE SHIFT
BUFFER
90°
LIMITER AMP
(Gv=46dB)
S/H
(±45°)
VECTOR ADDITION TYPE VCO
DC AMP
(Gv=11.4dB)
1k
10k
100k
TEST1
TEST2
BYP1
BYP2
A GND
CC1
CC2
BYP3

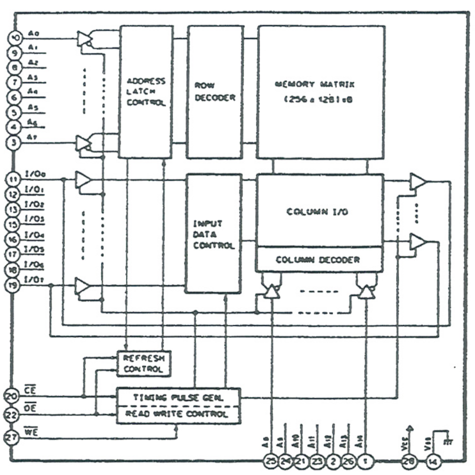
HD49211BFS
Single Processing LSI


ADR0
ADR14
D0
D7
RAM CONTROL BLOCK
DIGITAL INTERFACE BLOCK
Tx
Rx
P DATA
P DCK
R DATA
SWH
REC/PLAY BLOCK
INTERPOLATION BLOCK
MUTE
FLAG
ERROR CORRECTION BLOCK
A/D, D/A CONTROL BLOCK
CSW1
CSW2
CSW3
COMP1
COMP2
COMP3
CTRL
CCK
C DATA I
C DATA O
μ-COM INTERFACE BLOCK
FCH
SREF
TIMING GENERATION BLOCK
OSC1A
OSC1B
OSC2A
OSC2B
OSC3A
OSC3B
(SHOWN MAIN SECTION ONLY HD49211BFS : TOTAL 100 PINS)

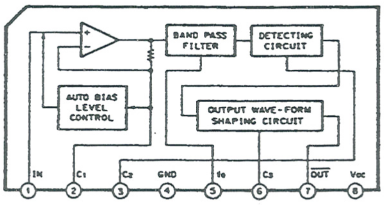
**HD4074709S**
4 bit Single-chip Microcomputer


14-bit PWM
SERIAL INTERFACE 1
SERIAL INTERFACE 2
EXTERNAL INTERRUPT
TIMER B
TIMER C
SYSTEM CONTROL
MODE REGISTER
TIMER A
INTERRUPT CONTROL
INSTRUCTION DECODER
VFD CONTROLLER/DISPLAY RAM 64 x 4 bit
RAM 512 x4 bit
STACK POINTER
BUS SWITCH
ROM 8192 x 10 bit 16384 x 10 bit
W(2)
X (4)
Y (4)
SPX (4)
SPY (4)
ALU
ST
CA
A (4)
B (4)
PC (14)
RA
R9
R8
R7
R6
R5
R4
R3
R2
R1
R0
D-port

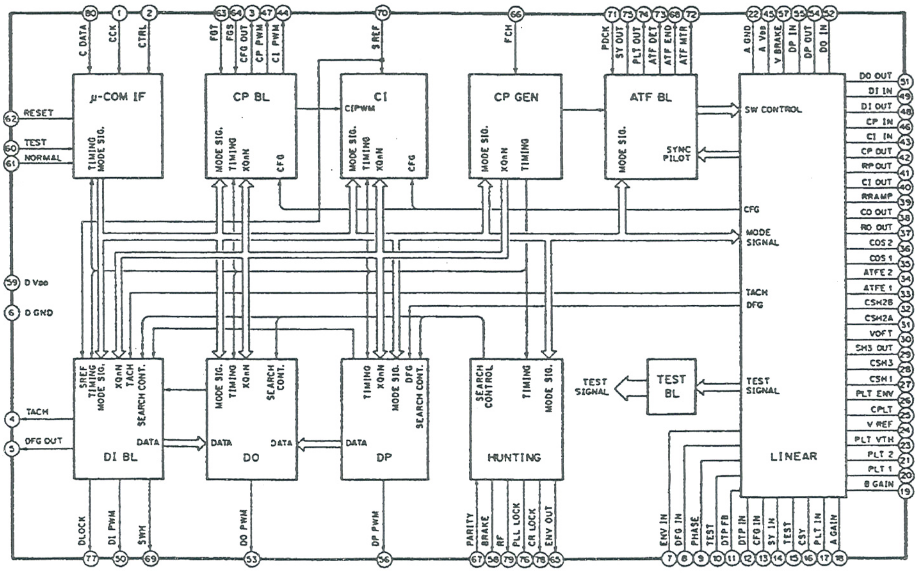
**HM65256BLF**
256K-bit High Speed CMOS Pseudo Static RAM


ADDRESS LATCH CONTROL
ROW DECODER
MEMORY MATRIX (256 x 128) x8
INPUT DATA CONTROL
COLUMN I/O
COLUMN DECODER
REFRESH CONTROL
TIMING PULSE GEN.
READ WRITE CONTROL
CE
OE
WE

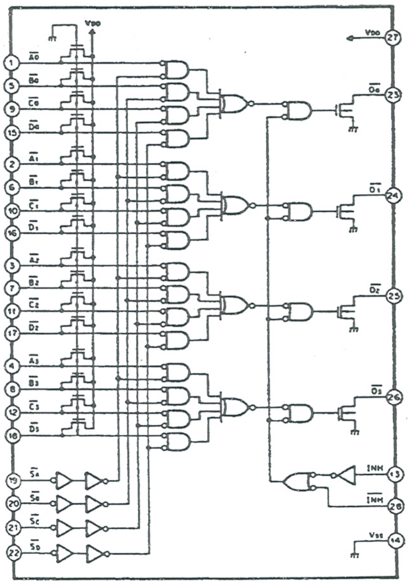
**IR3T21**
Infrared Remote-control Receiver


BAND PASS FILTER
DETECTING CIRCUIT
AUTO BIAS LEVEL CONTROL
OUTPUT WAVE-FORM SHAPING CIRCUIT
IN
C1
C2
GND
fo
C3
OUT
Vcc

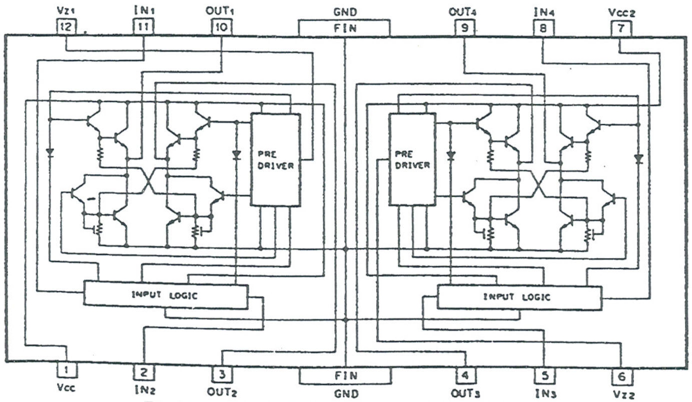
**HD49212**
Digital Servo LSI


μ-COM IF
CP BL
CI
CP GEN
ATF BL
DI BL
DO
DP
HUNTING
TEST BL
LINEAR
SW CONTROL
SYNC PILOT
TEST SIGNAL

**LC7800**
Input Expander



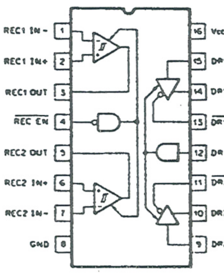
**LB1649**
Motor Driver


Vz1
IN1
OUT1
GND
FIN
OUT4
IN4
Vcc2
PRE DRIVER
INPUT LOGIC
Vcc
IN2
OUT2
OUT3
IN3
Vz2

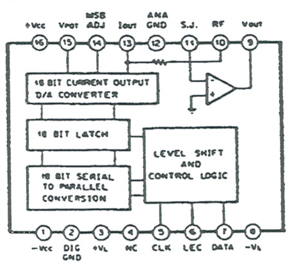
| IN1 | IN2 | OUT1 | OUT2 |
|---|---|---|---|
| 0 | 0 | L | L |
| 1 | 0 | H | L |
| 0 | 1 | L | H |
| 1 | 1 | L | L |

| IN3 | IN4 | OUT3 | OUT4 |
|---|---|---|---|
| 0 | 0 | L | L |
| 1 | 0 | H | L |
| 0 | 1 | L | H |
| 1 | 1 | L | L |

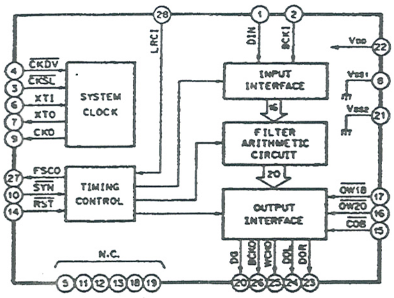
**MC34050MEL**
Dual RS-422/423 Tranceiver


REC1 IN-
REC1 IN+
REC1 OUT
REC EN
REC2 OUT
REC2 IN+
REC2 IN-
GND
Vcc
DR1 IN
DR1 OUT
DR1 OUT
DR EN
DR2 OUT
DR2 OUT
DR2 IN

**PCM61P**
18-bit Monolithic Audio A/D Converter

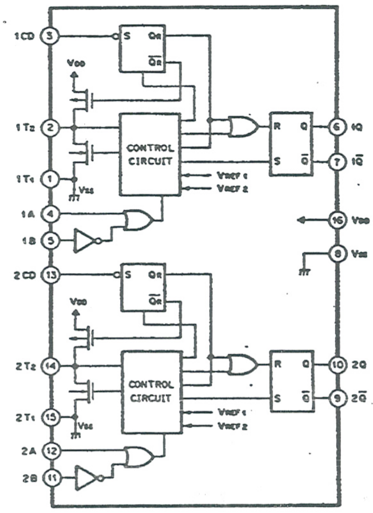

+Vcc
VPOT
MSB ADJ
Iout
ANA GND
S.J.
RF
Vout
18 BIT CURRENT OUTPUT D/A CONVERTER
18 BIT LATCH
18 BIT SERIAL TO PARALLEL CONVERSION
LEVEL SHIFT AND CONTROL LOGIC
-Vcc
DIG GND
+VL
NC
CLK
LEC
DATA
-VL

**SM5813APT**
8-times Over-sampling Digital Filter



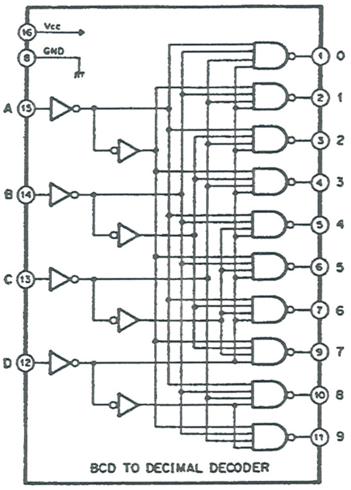
LRCI
DIN
BCKI
VDD
CKDV
CKSL
XTI
XTO
CKO
SYSTEM CLOCK
INPUT INTERFACE
VSS1
VSS2
FILTER ARITHMETIC CIRCUIT
FSCO
SYN
RST
TIMING CONTROL
OUTPUT INTERFACE
OW18
OW20
COB
N.C.
DG
BCKO
WCKO
DOL
DOR

**TC4538BF**
Dual Precisi on Retriggerable/Resettable Monostable Multivibrator



1CD
1T2
1T1
1A
1B
2CD
2T2
2T1
2A
2B
VDD
VSS
CONTROL CIRCUIT
VREF1
VREF2
1Q
1Q̄
2Q
2Q̄

**SN74LS145N**
BCD-to-Decimal Decoder/Drivers

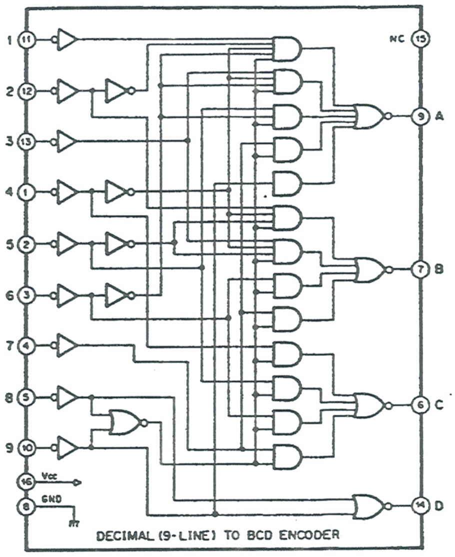


Vcc
GND
A
B
C
D
0
1
2
3
4
5
6
7
8
9
BCD TO DECIMAL DECODER

FUNCTION TABLE

| No. | INPUTS |  |  |  | OUTPUTS |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | D | C | B | A | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | L | L | L | L | L | H | H | H | H | H | H | H | H | H |
| 1 | L | L | L | H | H | L | H | H | H | H | H | H | H | H |
| 2 | L | L | H | L | H | H | L | H | H | H | H | H | H | H |
| 3 | L | L | H | H | H | H | H | L | H | H | H | H | H | H |
| 4 | L | H | L | L | H | H | H | H | L | H | H | H | H | H |
| 5 | L | H | L | H | H | H | H | H | H | L | H | H | H | H |
| 6 | L | H | H | L | H | H | H | H | H | H | L | H | H | H |
| 7 | L | H | H | H | H | H | H | H | H | H | H | L | H | H |
| 8 | H | L | L | L | H | H | H | H | H | H | H | H | L | H |
| 9 | H | L | L | H | H | H | H | H | H | H | H | H | H | L |

**SN74LS147N**
Decimal-to BCD Encoders

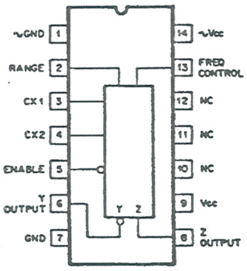


1
2
3
4
5
6
7
8
9
NC
A
B
C
D
Vcc
GND
DECIMAL (9-LINE) TO BCD ENCODER

FUNCTION TABLE (X : IRRELEVANT)

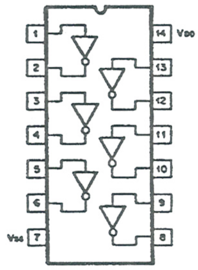
| No. | INPUTS |  |  |  |  |  |  |  |  | OUTPUTS |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | D | C | B | A |
| 9 | X | X | X | X | X | X | X | X | L | L | H | H | L |
| 8 | X | X | X | X | X | X | X | L | H | L | H | H | H |
| 7 | X | X | X | X | X | X | L | H | H | H | L | L | L |
| 6 | X | X | X | X | X | L | H | H | H | H | L | L | H |
| 5 | X | X | X | X | L | H | H | H | H | H | L | H | L |
| 4 | X | X | X | L | H | H | H | H | H | H | L | H | H |
| 3 | X | X | L | H | H | H | H | H | H | H | H | L | L |
| 2 | X | L | H | H | H | H | H | H | H | H | H | L | H |
| 1 | L | H | H | H | H | H | H | H | H | H | H | H | L |
| 0 | H | H | H | H | H | H | H | H | H | H | H | H | H |

**SN74LS624N**
Voltage-controlled Oscillator

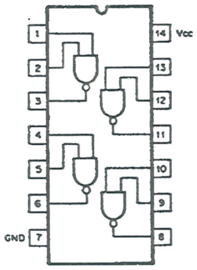


~GND
RANGE
CX1
CX2
ENABLE
Y OUTPUT
GND
~Vcc
FREQ CONTROL
NC
NC
NC
Vcc
Z OUTPUT
Y
Z

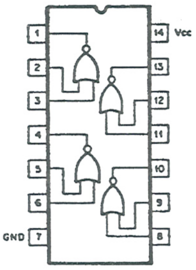
**TC4069UBF**
Hex Inverter



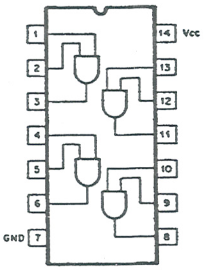
**TC74HC00AF**
QUAD 2-input NAND Gate



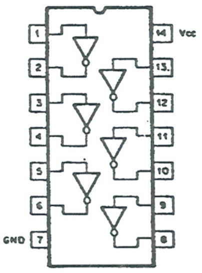
**TC74HC002AF**
Quad 2-input NOR Gate



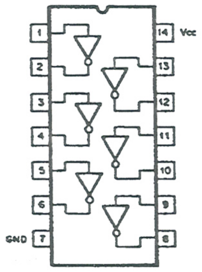
**TC74HC08AF**
Quad 2-input AND Gate



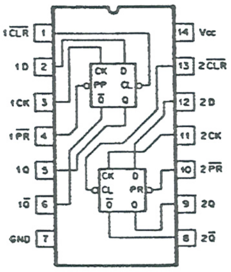
**TC74HC04AF**
Hex Inverter



**TC74HCU04AF**
Hex Inverter

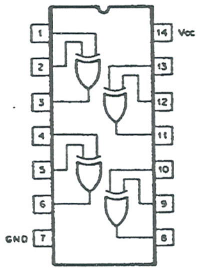


**TC74HC74AF**
Dual D-type Flip-flop with
Preset and Clear

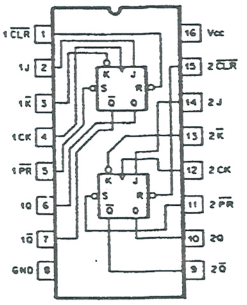


1CLR
1D
1CK
1PR
1Q
1Q̄
GND
Vcc
2CLR
2D
2CK
2PR
2Q
2Q̄
CK
D
PR
CL
Q̄
Q

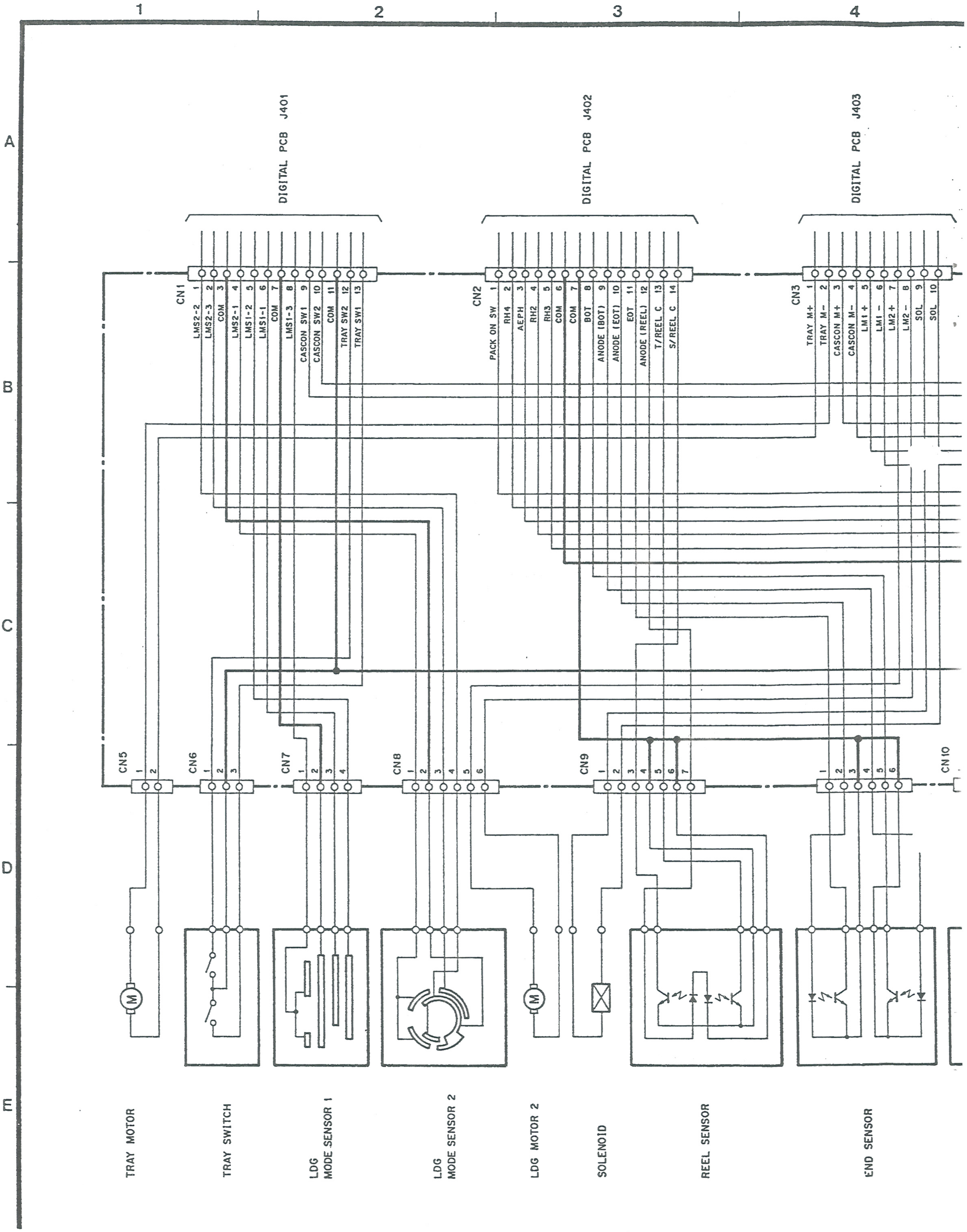
**TC74HC86AF**
Quad Exclusive OR Gate

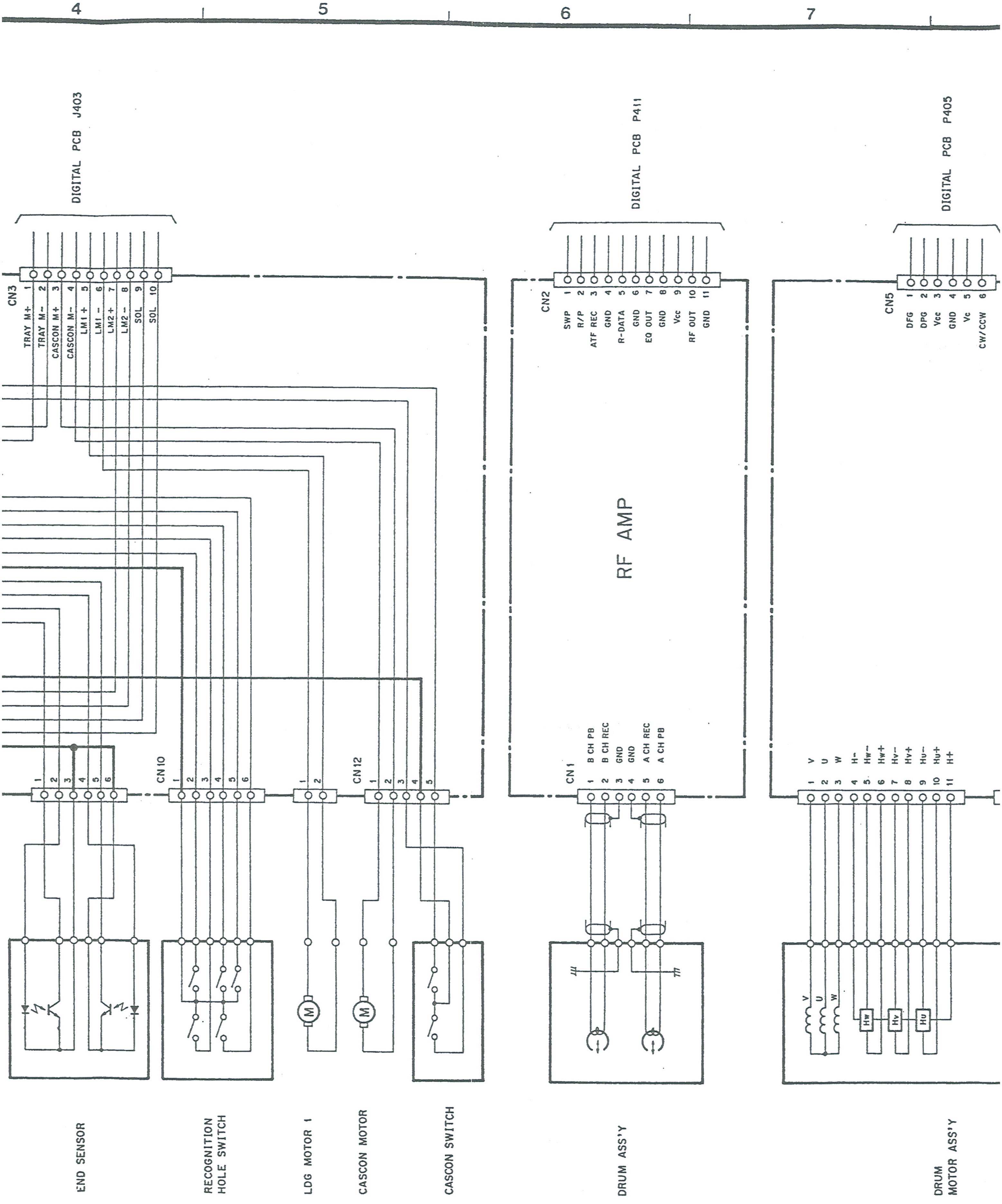


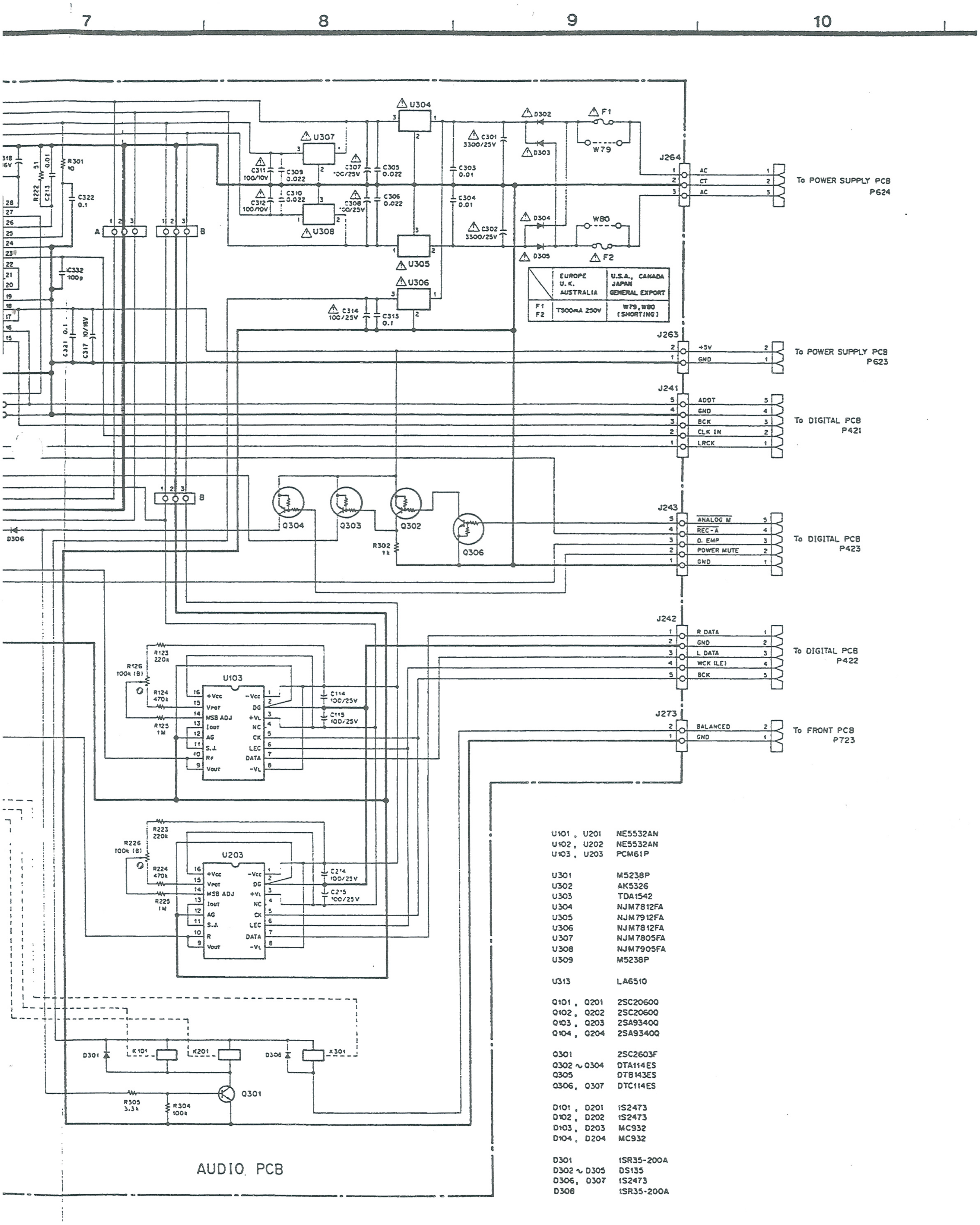
**TC74HC109AF**
Dual J-K Flip-flop with
Preset and Clear



1CLR
1J
1K̄
1CK
1PR
1Q
1Q̄
GND
Vcc
2CLR
2J
2K̄
2CK
2PR
2Q
2Q̄
K
J
S
R
Q̄
Q


1
2
3
4
A
B
C
D
E
DIGITAL PCB J401
DIGITAL PCB J402
DIGITAL PCB J403
CN1
LMS2-2 1
LMS2-3 2
COM 3
LMS2-1 4
LMS1-2 5
LMS1-1 6
COM 7
LMS1-3 8
CASCON SW1 9
CASCON SW2 10
COM 11
TRAY SW2 12
TRAY SW1 13
CN2
PACK ON SW 1
RH4 2
AEPH 3
RH2 4
RH3 5
COM 6
COM 7
BOT 8
ANODE (BOT) 9
ANODE (EOT) 10
EOT 11
ANODE (REEL) 12
T/REEL C 13
S/REEL C 14
CN3
TRAY M+ 1
TRAY M- 2
CASCON M+ 3
CASCON M- 4
LM1 + 5
LM1 - 6
LM2 + 7
LM2 - 8
SOL 9
SOL 10
CN5
1
2
CN6
1
2
3
CN7
1
2
3
4
CN8
1
2
3
4
5
6
CN9
1
2
3
4
5
6
7
1
2
3
4
5
6
CN10
M
M
TRAY MOTOR
TRAY SWITCH
LDG MODE SENSOR 1
LDG MODE SENSOR 2
LDG MOTOR 2
SOLENOID
REEL SENSOR
END SENSOR

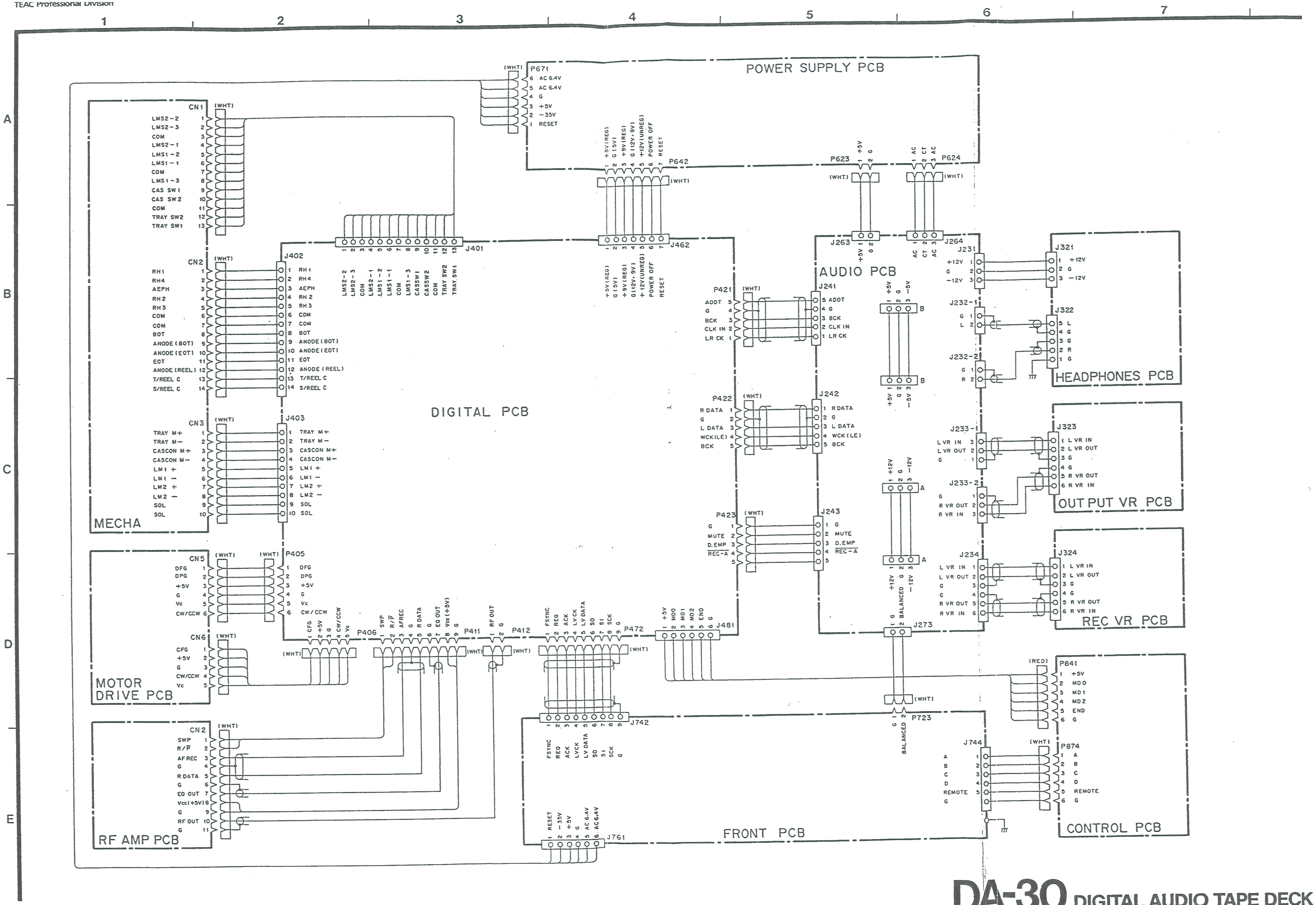

4
5
6
7
DIGITAL PCB J403
CN3
TRAY M+ 1
TRAY M− 2
CASCON M+ 3
CASCON M− 4
LM1 + 5
LM1 − 6
LM2 + 7
LM2 − 8
SOL 9
SOL 10
DIGITAL PCB P411
CN2
SWP 1
R/P 2
ATF REC 3
GND 4
R-DATA 5
GND 6
EQ OUT 7
GND 8
Vcc 9
RF OUT 10
GND 11
RF AMP
DIGITAL PCB P405
CN5
DFG 1
DPG 2
Vcc 3
GND 4
Vc 5
CW/CCW 6
CN10
CN12
CN1
1 B CH PB
2 B CH REC
3 GND
4 GND
5 A CH REC
6 A CH PB
1 V
2 U
3 W
4 H−
5 Hw−
6 Hw+
7 Hv−
8 Hv+
9 Hu−
10 Hu+
11 H+
M
M
V
U
W
Hw
Hv
Hu
END SENSOR
RECOGNITION HOLE SWITCH
LDG MOTOR 1
CASCON MOTOR
CASCON SWITCH
DRUM ASS'Y
DRUM MOTOR ASS'Y


7
8
9
10
U304
U307
U308
U305
U306
C301 3300/25V
C302 3300/25V
C303 0.01
C304 0.01
C305 0.022
C306 0.022
C307 100/25V
C308 100/25V
C309 0.022
C310 0.022
C311 100/10V
C312 100/10V
C313 0.1
C314 100/25V
318 16V
R222 51
C213 0.01
R301 10
C322 0.1
C332 100p
C321 0.1
C317 10/16V
28
27
26
25
24
23
22
21
20
19
18
17
16
15
A
B
D302
D303
D304
D305
F1
F2
W79
W80
J264
AC
CT
AC
To POWER SUPPLY PCB P624
J263
+5V
GND
To POWER SUPPLY PCB P623
J241
ADDT
GND
BCK
CLK IN
LRCK
To DIGITAL PCB P421
Q304
Q303
Q302
Q306
R302 1k
D306
J243
ANALOG M
REC-A
D. EMP
POWER MUTE
GND
To DIGITAL PCB P423
J242
R DATA
GND
L DATA
WCK (LE)
BCK
To DIGITAL PCB P422
J273
BALANCED
GND
To FRONT PCB P723
U103
R123 220k
R126 100k (B)
R124 470k
R125 1M
C114 100/25V
C115 100/25V
+Vcc
VPOT
MSB ADJ
IOUT
AG
S.J.
RF
VOUT
-Vcc
DG
+VL
NC
CK
LEC
DATA
-VL
U203
R223 220k
R226 100k (B)
R224 470k
R225 1M
C214 100/25V
C215 100/25V
R
D301
K101
K201
D306
K301
Q301
R305 3.3k
R304 100k
AUDIO PCB

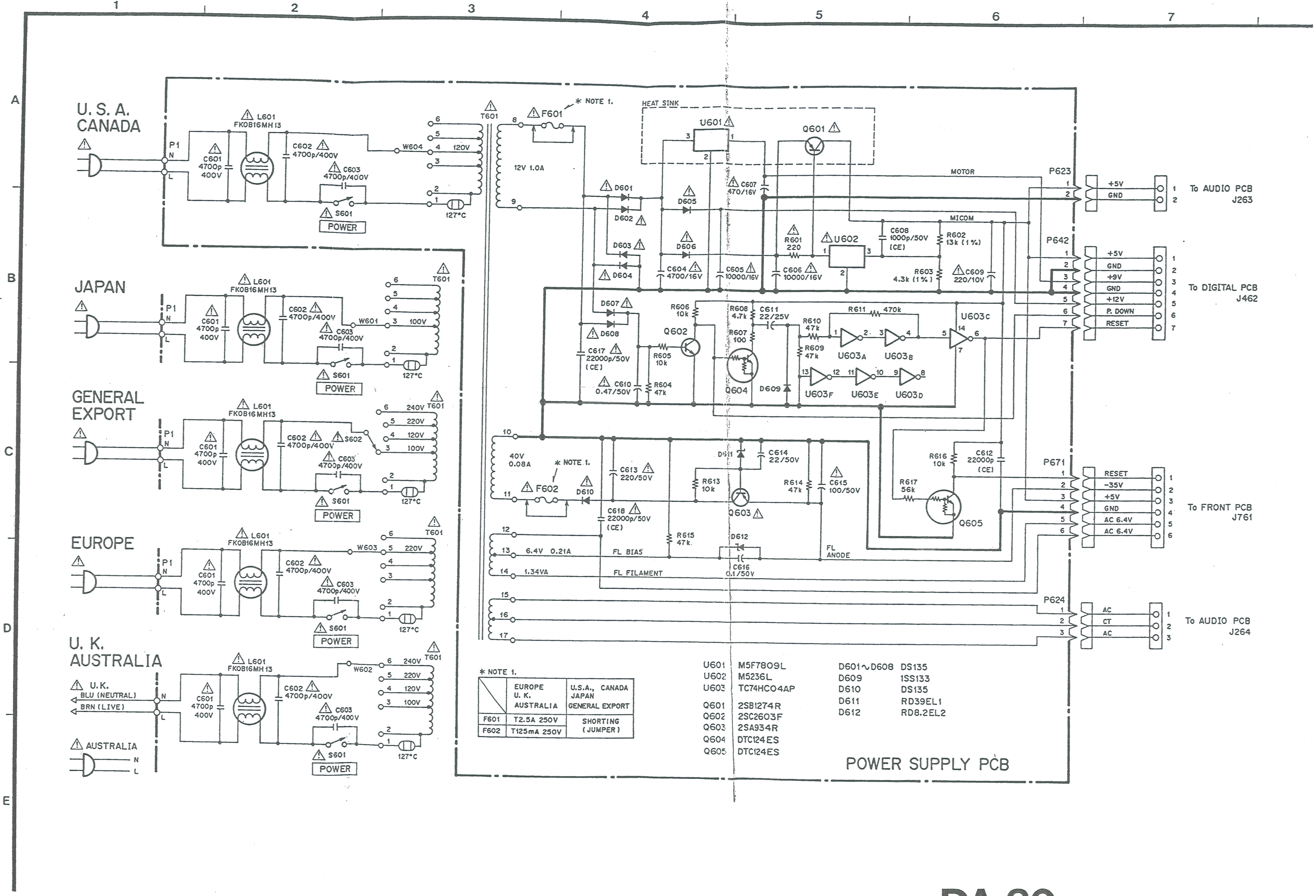
|  | EUROPE<br>U.K.<br>AUSTRALIA | U.S.A., CANADA<br>JAPAN<br>GENERAL EXPORT |
|---|---|---|
| F1<br>F2 | T500mA 250V | W79, W80<br>(SHORTING) |

| | |
|---|---|
| U101 , U201 | NE5532AN |
| U102 , U202 | NE5532AN |
| U103 , U203 | PCM61P |
| U301 | M5238P |
| U302 | AK5326 |
| U303 | TDA1542 |
| U304 | NJM7812FA |
| U305 | NJM7912FA |
| U306 | NJM7812FA |
| U307 | NJM7805FA |
| U308 | NJM7905FA |
| U309 | M5238P |
| U313 | LA6510 |
| Q101 , Q201 | 2SC2060Q |
| Q102 , Q202 | 2SC2060Q |
| Q103 , Q203 | 2SA9340Q |
| Q104 , Q204 | 2SA9340Q |
| Q301 | 2SC2603F |
| Q302 ~ Q304 | DTA114ES |
| Q305 | DTB143ES |
| Q306, Q307 | DTC114ES |
| D101 , D201 | 1S2473 |
| D102 , D202 | 1S2473 |
| D103 , D203 | MC932 |
| D104 , D204 | MC932 |
| D301 | 1SR35-200A |
| D302 ~ D305 | DS135 |
| D306, D307 | 1S2473 |
| D308 | 1SR35-200A |

# DA-30 DIGITAL AUDIO TAPE DECK

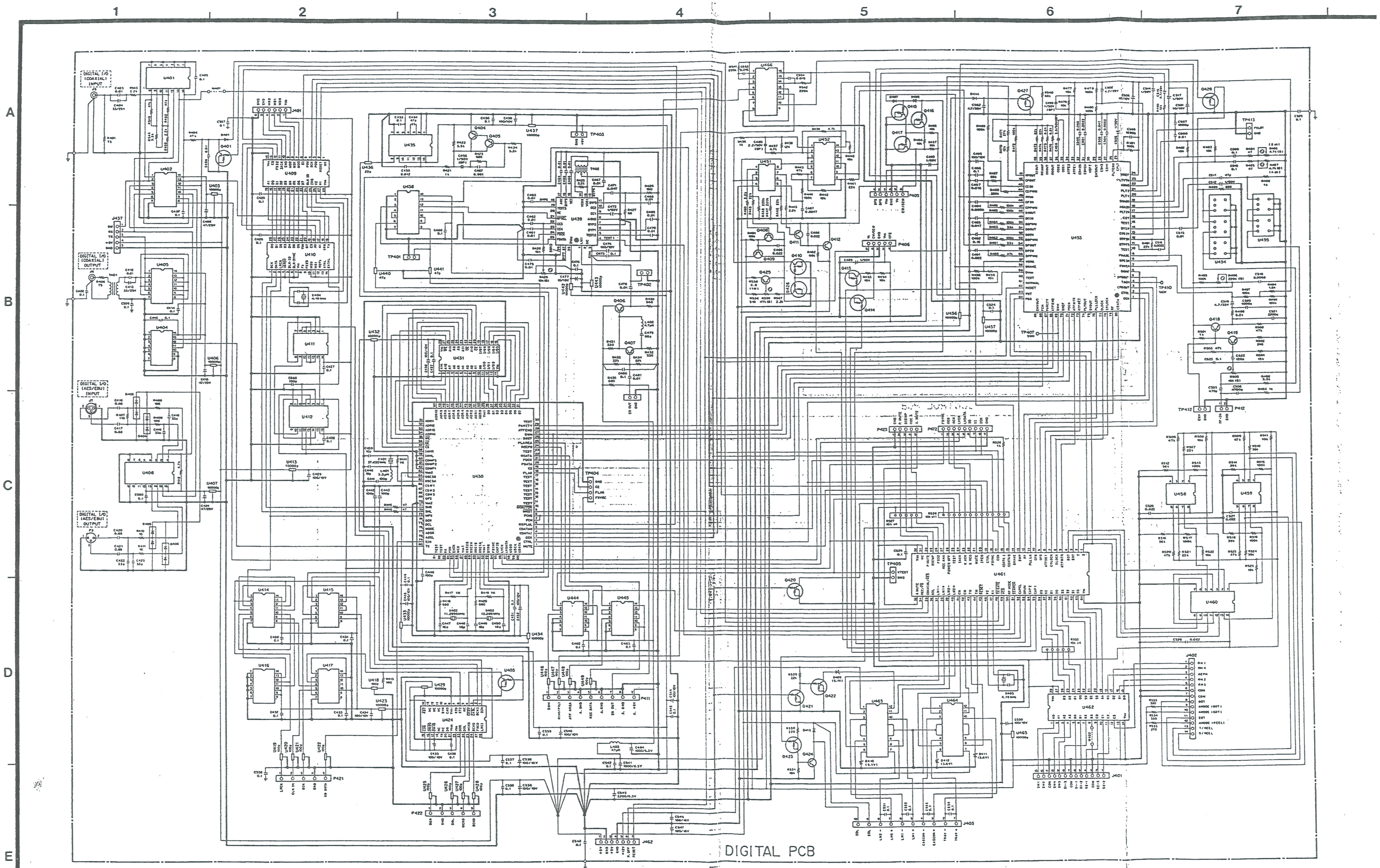

1
2
3
4
5
6
7
A
B
C
D
E
POWER SUPPLY PCB
P671 (WHT)
6 AC 6.4V
5 AC 6.4V
4 G
3 +5V
2 −35V
1 RESET
P642 (WHT)
1 +5V (REG)
2 G (5V)
3 +9V (REG)
4 G (12V, 9V)
5 +12V (UNREG)
6 POWER OFF
7 RESET
P623 (WHT)
1 +5V
2 G
P624 (WHT)
1 AC
2 CT
3 AC
MECHA
CN1 (WHT)
LMS2-2
LMS2-3
COM
LMS2-1
LMS1-2
LMS1-1
COM
LMS1-3
CAS SW1
CAS SW2
COM
TRAY SW2
TRAY SW1
CN2 (WHT)
RH1
RH4
AEPH
RH2
RH3
COM
COM
BOT
ANODE (BOT)
ANODE (EOT)
EOT
ANODE (REEL)
T/REEL C
S/REEL C
CN3 (WHT)
TRAY M+
TRAY M−
CASCON M+
CASCON M−
LM1 +
LM1 −
LM2 +
LM2 −
SOL
SOL
DIGITAL PCB
J401
J402
J403
J462
P405
P406
P411
P412
P472
J481
MOTOR DRIVE PCB
CN5 (WHT)
DFG
DPG
+5V
G
Vc
CW/CCW
CN6 (WHT)
CFG
+5V
G
CW/CCW
Vc
RF AMP PCB
CN2 (WHT)
SWP
R/P̄
AFREC
G
RDATA
G
EQ OUT
Vcc (+5V)
G
RF OUT
G
AUDIO PCB
J263
J264
J241
J242
J243
J231
J232-1
J232-2
J233-1
J233-2
J234
J273
P421 (WHT)
ADDT
G
BCK
CLK IN
LR CK
P422 (WHT)
R DATA
G
L DATA
WCK (LE)
BCK
P423 (WHT)
G
MUTE
D.EMP
REC-A
+5V
G
−5V
+12V
G
−12V
BALANCED
HEADPHONES PCB
J321
+12V
G
−12V
J322
L
G
G
R
G
OUT PUT VR PCB
J323
L VR IN
L VR OUT
G
G
R VR OUT
R VR IN
REC VR PCB
J324
FRONT PCB
J742
FSYNC
REQ
ACK
LVCK
LV DATA
SO
SI
SCK
G
J744
A
B
C
D
REMOTE
G
J761
RESET
−35V
+5V
G
AC 6.4V
AC 6.4V
P723 (WHT)
CONTROL PCB
P841 (RED)
+5V
MD0
MD1
MD2
END
G
P874 (WHT)
A
B
C
D
REMOTE
G

# DA-30 DIGITAL AUDIO TAPE DECK


1
2
3
4
5
6
7
A
B
C
D
E
U. S. A.
CANADA
JAPAN
GENERAL
EXPORT
EUROPE
U. K.
AUSTRALIA
U.K.
BLU (NEUTRAL)
BRN (LIVE)
AUSTRALIA
P1
N
L
L601
FK0B16MH13
C601
4700p
400V
C602
4700p/400V
C603
4700p/400V
S601
POWER
S602
127°C
W601
W602
W603
W604
T601
6
5
4
3
2
1
120V
100V
240V
220V
F601
* NOTE 1.
12V 1.0A
8
9
10
11
12
13
14
15
16
17
40V
0.08A
F602
D610
6.4V 0.21A
1.34VA
FL BIAS
FL FILAMENT
FL
ANODE
HEAT SINK
U601
Q601
U602
U603A
U603B
U603C
U603D
U603E
U603F
Q602
Q603
Q604
Q605
D601
D602
D603
D604
D605
D606
D607
D608
D609
D611
D612
C604
4700/16V
C605
10000/16V
C606
10000/16V
C607
470/16V
C608
1000p/50V
(CE)
C609
220/10V
C610
0.47/50V
C611
22/25V
C612
22000p
(CE)
C613
220/50V
C614
22/50V
C615
100/50V
C616
0.1/50V
C617
22000p/50V
(CE)
C618
22000p/50V
(CE)
R601
220
R602
13k (1%)
R603
4.3k (1%)
R604
47k
R605
10k
R606
10k
R607
100
R608
4.7k
R609
47k
R610
47k
R611
470k
R613
10k
R614
47k
R615
47k
R616
10k
R617
56k
MOTOR
MICOM
P623
+5V
GND
To AUDIO PCB
J263
P642
+5V
GND
+9V
GND
+12V
P. DOWN
RESET
To DIGITAL PCB
J462
P671
RESET
−35V
+5V
GND
AC 6.4V
AC 6.4V
To FRONT PCB
J761
P624
AC
CT
AC
To AUDIO PCB
J264
* NOTE 1.
EUROPE
U. K.
AUSTRALIA
U.S.A., CANADA
JAPAN
GENERAL EXPORT
F601
T2.5A 250V
F602
T125mA 250V
SHORTING
(JUMPER)
U601 M5F7809L
U602 M5236L
U603 TC74HC04AP
Q601 2SB1274R
Q602 2SC2603F
Q603 2SA934R
Q604 DTC124ES
Q605 DTC124ES
D601∿D608 DS135
D609 1SS133
D610 DS135
D611 RD39EL1
D612 RD8.2EL2
POWER SUPPLY PCB

**DA-30 DIGITAL AUDIO TAPE DECK**

TEAC Professional Division


1
2
3
4
5
6
7
A
B
C
D
E
DIGITAL I/O (COAXIAL) INPUT
DIGITAL I/O (COAXIAL) OUTPUT
DIGITAL I/O (AES/EBU) INPUT
DIGITAL I/O (AES/EBU) OUTPUT
U430
U453
U461
U462
J402
J401
J403
J462
P421
P422
DIGITAL PCB

• : EMI FILTER

U401 TC74HCU04AF
U402 TC74HC00AF
• U403 EMC-EMT 10000PFC
U404 TC74HC00AF
U405 TC74HCU04AF

• U406, U407 EMC-EMT 10000PFC
U408 MC34050MEL
U409 μPD75P402C
U410 CX23053
U411 TC74HC02AF

U412 TC74HC109AF
• U413 EMC-EMT 10000PFC
U414, U415 TC74HCU04AF
U416 TC74HC86AF
U417 TC74HC74AF

• U418 ~ U422 EMC-EMT 1000PFC
• U423 EMC-EMT 10000PFC
U424 SM5813APT
• U425 ~ U428 EMC-EMT 1000PFC
• U429 EMC-EMT 10000PFC

U430 HD49211BFS
U431 HM652568LF-12TT
• U432 ~ U434 EMC-EMT 10000PFC
U435 SN74LS624NS-ELS
• U436 EMC-EMT 220PFC

• U437 EMC-EMT 10000PFC
U438 TC74HC04AF
U439 HA12062AMP
• U440, U441 EMC-EMT 47PFC
• U442, U443 EMC-EMT 10000PFC

U444 TC74HC08AF
U445 TC74HC04AF
• U446 ~ U449 EMC-EMT 100PFC
U451 μPC358G2

U452 μPC324G2
U453 HD49212
U454 [illegible]
U455 [illegible]
• U456, U457 EMC-EMT 10000PFC

U458, U459 μPC393G2
U460 TC4069UBF
U461 μPD75P116CW
U462 LC7800
U463, U464 LB1649

• U465 EMC-EMT 10000PFC
U466 TC4538BF

Q401 DTC144EKT-96
Q403 DTC144EKT-96
Q404, Q405 2SC2412K
Q406, Q407 2SC2620C

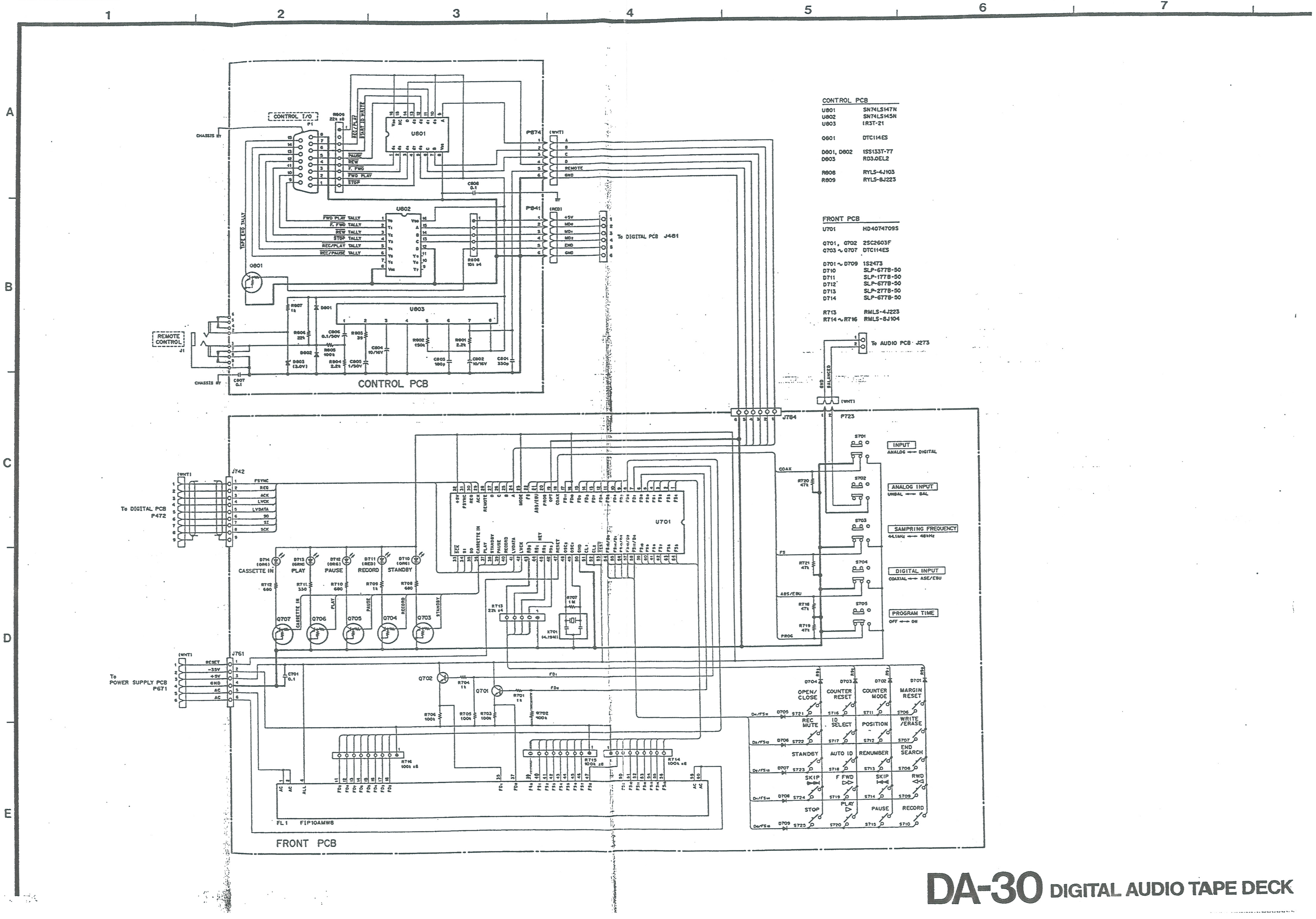
Q408 2SC2412K
Q409 2SB1274R
Q410 DTC144EKT-96
Q411 2SC2412K
Q412 2SB1274R

Q413 ~ Q417 DTC144EKT-96
Q418, Q419 2SC2412K
Q420 ~ Q423 DTC144EKT-96
Q424 2SD1221Y
Q425 2SB880

Q426 ~ Q428 DTC144EKT-96
D401 DA119
D403 ~ D406 MC932

D407, D408 DA119
D409, D410 RD5.1EL2
D411, D412 RD5.6EL2
D413 DS135
D414 DA119

# DA-30 DIGITAL AUDIO TAPE DECK


1
2
3
4
5
6
7
A
B
C
D
E
CONTROL I/O
P1
CHASSIS
U801
U802
U803
Q801
P874
P841
REMOTE CONTROL
J1
PAUSE
REW
F. FWD
FWD PLAY
STOP
FWD PLAY TALLY
F. FWD TALLY
REW TALLY
STOP TALLY
REC/PLAY TALLY
REC/PAUSE TALLY
TAPE END TALLY
To DIGITAL PCB J461
CONTROL PCB
To AUDIO PCB J273
J784
P723
J742
To DIGITAL PCB P472
FSYNC
REQ
ACK
LVCK
LVDATA
SO
SI
SCK
J761
To POWER SUPPLY PCB P671
RESET
-35V
+5V
GND
AC
U701
X701
CASSETTE IN
PLAY
PAUSE
RECORD
STANDBY
Q702
Q701
Q703
Q704
Q705
Q706
Q707
S701
INPUT
ANALOG DIGITAL
S702
ANALOG INPUT
UNBAL BAL
S703
SAMPRING FREQUENCY
44.1kHz 48kHz
S704
DIGITAL INPUT
COAXIAL AES/EBU
S705
PROGRAM TIME
OFF ON
OPEN/CLOSE
COUNTER RESET
COUNTER MODE
MARGIN RESET
REC MUTE
ID SELECT
POSITION
WRITE /ERASE
STANDBY
AUTO ID
RENUMBER
END SEARCH
SKIP
F FWD
SKIP
RWD
STOP
PLAY
PAUSE
RECORD
FL1 FIP10AMW6
FRONT PCB

## CONTROL PCB

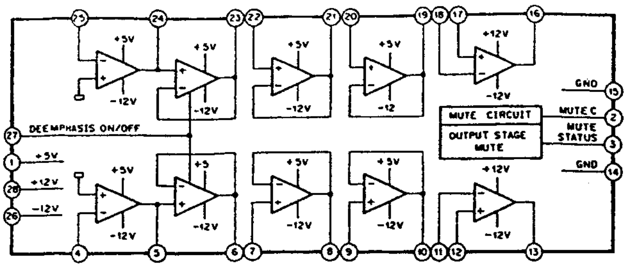
| | |
|---|---|
| U801 | SN74LS147N |
| U802 | SN74LS145N |
| U803 | IR3T-21 |
| Q801 | DTC114ES |
| D801, D802 | 1SS133T-77 |
| D803 | RD3.0EL2 |
| R808 | RYLS-4J103 |
| R809 | RYLS-8J223 |

## FRONT PCB

| | |
|---|---|
| U701 | HD40747095 |
| Q701, Q702 | 2SC2603F |
| Q703 ~ Q707 | DTC114ES |
| D701 ~ D709 | 1S2473 |
| D710 | SLP-677B-50 |
| D711 | SLP-177B-50 |
| D712 | SLP-677B-50 |
| D713 | SLP-277B-50 |
| D714 | SLP-677B-50 |
| R713 | RMLS-4J223 |
| R714 ~ R716 | RMLS-8J104 |

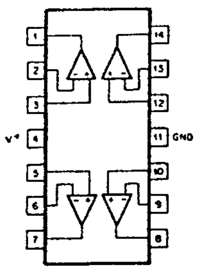
**DA-30 DIGITAL AUDIO TAPE DECK**

**TDA1542**
Dual Channel Active Element for Post Filtering

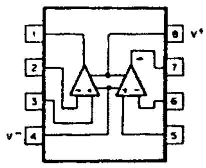


+5V
-12V
+12V
GND
MUTE CIRCUIT
MUTE C
OUTPUT STAGE MUTE
MUTE STATUS
DEEMPHASIS ON/OFF

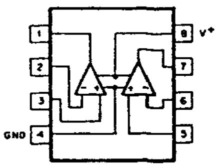
**µ PC324G2W**
Quad Operational Amplifier



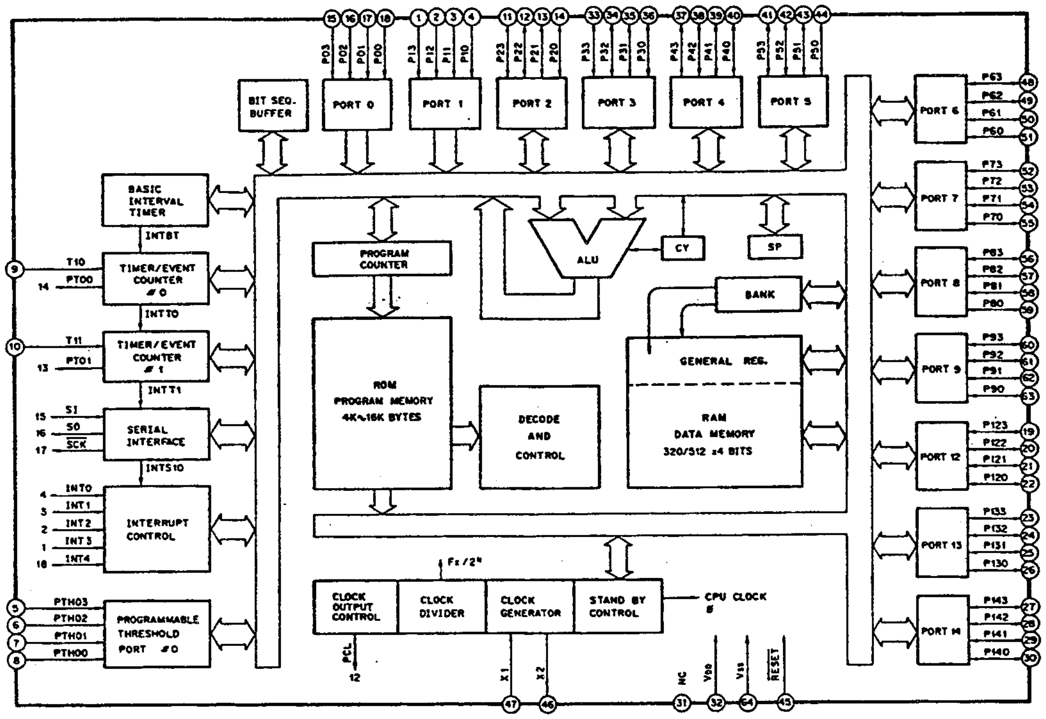
**µ PC358G2**
Dual Operational Amplifier



**µ PC393G2**
Dual Comparator

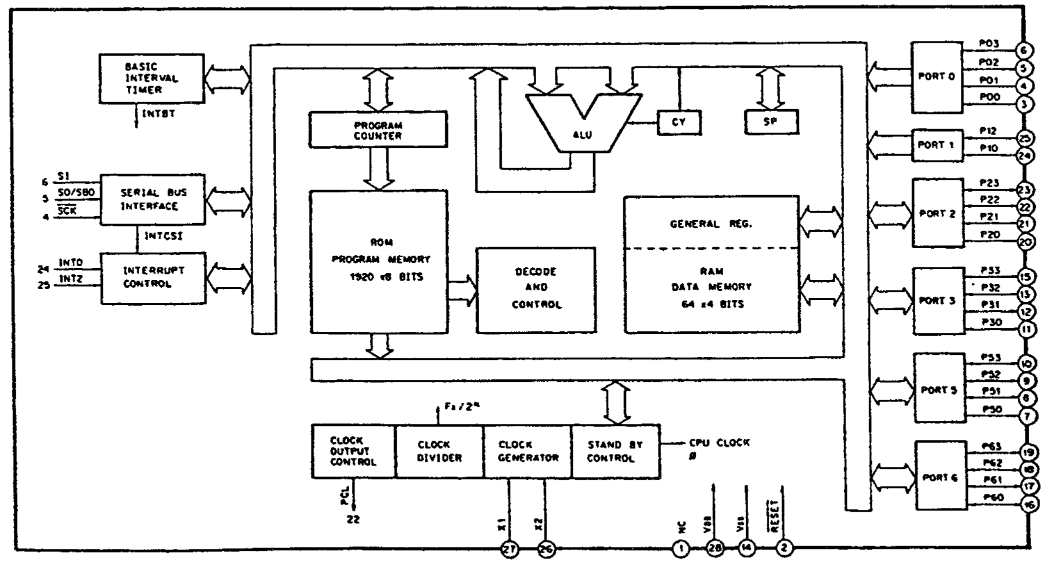


**µ PD75P116CW**
4-bit Single-chip Microcomputer



BIT SEQ. BUFFER
PORT 0
PORT 1
PORT 2
PORT 3
PORT 4
PORT 5
PORT 6
PORT 7
PORT 8
PORT 9
PORT 12
PORT 13
PORT 14
BASIC INTERVAL TIMER
INTBT
TIMER/EVENT COUNTER #0
INTT0
TIMER/EVENT COUNTER #1
INTT1
SERIAL INTERFACE
INTSIO
INTERRUPT CONTROL
PROGRAMMABLE THRESHOLD PORT #0
PROGRAM COUNTER
ALU
CY
SP
BANK
ROM PROGRAM MEMORY 4K~16K BYTES
DECODE AND CONTROL
GENERAL REG.
RAM DATA MEMORY 320/512 ×4 BITS
Fx/2ᴺ
CLOCK OUTPUT CONTROL
CLOCK DIVIDER
CLOCK GENERATOR
STAND BY CONTROL
CPU CLOCK Φ
PCL
X1
X2
NC
VDD
VSS
RESET
TI0
PTO0
TI1
PTO1
SI
SO
SCK
INT0
INT1
INT2
INT3
INT4
PTH03
PTH02
PTH01
PTH00

**µ PD75P402C**
4-bit Single-chip Microcomputer



BASIC INTERVAL TIMER
INTBT
SERIAL BUS INTERFACE
INTCSI
INTERRUPT CONTROL
SI
SO/SB0
SCK
INT0
INT2
PROGRAM COUNTER
ALU
CY
SP
ROM PROGRAM MEMORY 1920 ×8 BITS
DECODE AND CONTROL
GENERAL REG.
RAM DATA MEMORY 64 ×4 BITS
Fx/2ᴺ
CLOCK OUTPUT CONTROL
CLOCK DIVIDER
CLOCK GENERATOR
STAND BY CONTROL
CPU CLOCK Φ
PCL
X1
X2
NC
VDD
VSS
RESET
PORT 0
PORT 1
PORT 2
PORT 3
PORT 5
PORT 6